

“Early childhood nutrition should be at the centre of public health policy...”

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## FOR STARTERS

Louise Bazalgette



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First published in 2012  
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*Magdalen House, 136 Tooley Street,  
London, SE1 2TU, UK*

ISBN 978 1 909037 26 7  
Series design by modernactivity  
Typeset by Chat Noir Design, Charente  
Printed by Lecturis, Eindhoven

Set in Gotham Rounded  
and Baskerville 10  
Cover paper: Flora Gardenia  
Text paper: Munken Premium White



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Louise Bazalgette

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## Acknowledgements

I would like to thank the British Specialist Nutrition Association for their generous support without which this project would not have been possible and for their engagement and encouragement throughout the research. In particular I would like to thank Helen Crichton, Michael Collyer, Roger Clarke and Amy-Jane Valender.

I would also like to thank Bounty for their generous support of the project, which included the use of their ‘Word of Mum’ panel for our childhood nutrition survey. In particular I would like to thank Anna-lisa Yeowell and Lisa Penney for their interest and support throughout.

This research also received very valuable input from a steering committee of experts, which included Ross Hendry, Dr Colin Michie, Dr Sam Royston, Celia Hannon, Judy More, Professor Yvonne Kelly, Alison M Lennox and Dr Patricia Mucavele. Their time and contribution to this project is hugely appreciated.

I was also lucky enough to be able to interview a broad range of experts during the course of this project, some of whom shall remain nameless. I am very grateful to all of those who gave up their time to be interviewed; a list of interviewees is included in this report at appendix A. I am also very grateful to June O’Sullivan, Laura Rodrigues, Sue Robb, Daniel Breslin, Julie Lanigan, Jane Taylor, Rashida Latif, Marg Randles, Mel Fox, Sue Barr and Matt Clarke for their help and support with various aspects of qualitative research for this report including the case studies and research workshops with parents.

I am very grateful to The Centre for Longitudinal Studies, Institute of Education for the use of the Millennium Cohort Study data and to the UK Data Archive and Economic and Social Data Service for making these data available. I am also grateful to all of the parents and children who took part in the Millennium Cohort Study (waves 1-4). It is important to emphasise that, although Demos was granted access to this data set, The Centre for Longitudinal Studies bears no responsibility for the analysis or interpretation of these data and the findings and conclusions of this study are attributable to Demos alone.

I am also indebted to a large number of Demos colleagues and associates for their valuable input into this project. First and foremost I would like to thank Bryanna Hahn for performing the statistical analysis of the Millennium Cohort Study contained in this report, which has generated important insights for the project as a whole. I would also like to thank Charlotte Stirling-Reed, who worked alongside Demos on the research workshops with parents as a consultant nutritionist, for her expertise and creativity and for some very enjoyable train journeys.

I am grateful to Julia Margo for her creative input and support in the initial stages of developing this project. I am also grateful to Claudia Wood for her ideas and constant advice and encouragement throughout the project. Maia Beresford, Gaja Maestri and Hasina Khatun provided very valuable research support with literature reviews, case studies and expert interviews. Max Wind-Cowie kept me amused and Duncan O’Leary provided valuable advice in the final stages of the project. I would like to thank Susannah Wight for her skilled copy-editing, Ralph Scott for expertly steering the report through the publication process and for his and Rob Macpherson’s work on publicising the report, and Sophie Duder and Josephine Brady for their organisational support and work on the report launch.

All of those listed in these acknowledgements made significant contributions to this work. However, this does not mean they necessarily endorse the conclusions contained in this paper. As ever, all editorial decisions rested with Demos and any errors or omissions in this report remain my own.

Louise Bazalgette  
December 2012

# Executive summary

## Introduction

The early years are now regarded by politicians and policymakers as a critical period for intervening to improve children's outcomes. A growing body of evidence demonstrates the importance of a healthy and balanced diet to infants' and children's early development and later life outcomes. Breast-feeding and good nutrition in the pre-school years have been found to be extremely important to children's health,<sup>1</sup> behavioural development<sup>2</sup> and educational attainment.<sup>3</sup> There is also emerging evidence that breastfeeding and good child nutrition can help protect against the development of health risks such as high blood pressure and cholesterol, type 2 diabetes and obesity in adulthood.<sup>4</sup> Recent research has shown that the period spanning pregnancy and the first two years of a child's life is a critical time for laying the foundations of healthy development and preventing nutritional problems from arising.<sup>5</sup>

However, despite this growing knowledge-base, early childhood nutrition still does not occupy a central role in the early intervention policy agenda. Policymakers have been less engaged in children's nutritional needs in the early years, focusing instead on supporting young children's educational and social development. Where policy has sought to improve early nutrition, efforts have centred primarily on early education settings, thereby missing parents' vital role in establishing their children's taste preferences and eating patterns in the pre-school years.

## Research aims

Therefore, the aim of this research project was to identify how we can take a more preventative policy approach to supporting early childhood nutrition by gathering and building new evidence on:

- the impact of good or poor nutrition in the early years on children's subsequent health, behavioural and educational outcomes
- parents' current knowledge of infants and toddlers' nutritional needs, across demographic groups
- the factors that influence how parents feed their children (including income, educational levels, occupation, couple relationships, family and peer relationships, early years professionals, local geographical area, and the role of advertising and brands)
- parents' experiences of universal services that are intended to support early childhood nutrition
- which interventions are effective in improving infant and toddler nutrition in the UK and internationally

### Methodology

The main elements of the research methodology for this project included:

- *a review of evidence*: a comprehensive desk-based scoping exercise to identify existing evidence and good practice, and pinpoint the gaps in the current knowledge-base and policies in place
- *expert interviews*: a series of expert interviews across the relevant sectors to explore current thinking and policy approaches to nutrition in the early years
- *quantitative analysis*: original secondary analysis of the Millennium Cohort Study to develop new evidence on the impact of good or poor nutrition in the early years on children's subsequent health, behavioural and educational outcomes
- *a survey of over 1,800 mothers* through Bounty's Word of Mum panel (undertaken in July 2011) to explore how mothers make decisions about early childhood nutrition and challenges they face in providing their babies and toddlers with a healthy diet; please see appendix C for the demographic breakdown of participants
- *four research workshops* with 25 parents in Romford, Wigan, Gateshead and Knowsley to explore their knowledge of

toddlers' nutritional needs, their current family food choices, influences on their family food choices and their experiences of health and early education services that support early childhood nutrition<sup>6</sup>

- *seven case studies* demonstrating successful approaches to improving infant and toddler nutrition; they were developed through a combination of interviews with service providers, service users and site visits

## Research findings

### New analysis of the Millennium Cohort Study

Demos conducted original secondary analysis of the Millennium Cohort Study, a longitudinal cohort study of approximately 15,000 families living in the UK initiated in 2000, to explore how some of the children's feeding behaviours recorded in the survey relate to a selection of key developmental outcomes at ages 3, 5 and 7.

These new analyses provide evidence that regular mealtimes and eating breakfast daily significantly predict children's behavioural and cognitive development, with children performing better on test scores if they demonstrate these regular eating habits. For example, children who ate regularly at age 3 were 72 per cent more likely to have good emotional and behavioural outcomes at age 5 and 88 per cent more likely to have good emotional and behavioural outcomes at age 7 than children who did not eat regularly. Children who ate regularly at 9 months, 3 years and 5 years were in each case more likely to have good test scores in pattern construction, reading and maths at age 7.

These effects varied between ages. For example, there was a weaker relationship between regularity of feeding at age 9 months and that at age 5 than between ages 3 and 5, suggesting that eating patterns are set more firmly in the toddler years. However, regularity of mealtimes at age 3 was a stronger predictor of Strengths and Difficulties Questionnaire (SDQ) scores at age 7 than the regularity of mealtimes at age 5. This may suggest a 'time lag' effect. In contrast, the predictive

relationship between regularity of feeding and subsequent word reading test scores at age 7 seems to peak at age 3, then reduces slightly at age 5.

This provides new evidence that children's eating behaviours in the early years are linked not only to children's health in later childhood, but also to their social and cognitive outcomes, with important implications for the relationship between health inequalities and social mobility.

### Challenges that parents face in feeding young children a healthy diet

Mothers responding to the Bounty Word of Mum survey were asked if they experienced a series of challenges in feeding their baby or toddler. The survey found that half of mothers were unsure about correct portion sizes for their baby or toddler, 36 per cent of mothers felt they did not have time to provide the foods they would like to for their baby or toddler, 32 per cent of mothers found it challenging that their baby or toddler wanted to eat unsuitable foods, and 28 per cent of mothers agreed that they could not always afford the foods they would like to for their baby or toddler. One-fifth of mothers agreed that they felt unconfident about preparing food for their baby or toddler.

Conversations with parents in the research workshops produced similar findings, with even the most confident parents expressing confusion about what 'five a day' might mean for a baby or toddler and discussing the challenge of meeting work responsibilities and finding the time to prepare healthy meals for young children.

### Parents' knowledge of early childhood nutrition

A key challenge for parents explored in this report related to their knowledge of the nutritional needs of young children. Some parents lacked confidence in their knowledge and the Bounty Word of Mum survey found that 13 per cent of mothers were unsure about what is healthy for their baby or toddler to eat.

We also found that knowledge levels varied substantially between parents who participated in this research. Younger mothers who took part in the Bounty Word of Mum survey were particularly likely to be unaware of important nutritional principles such as toddlers' need for full-fat dairy products (20 per cent of mothers aged 16–24), the benefits of eating oily fish for young children (a third of mothers aged 16–24) and the risk of tooth decay posed by fruit juice (almost two in five mothers aged 16–24). This shows that some key health messages are currently not reaching a sizable minority of parents, and that younger parents are particularly likely not to take in government advice.

The research workshops with parents also revealed very low awareness of recommendations on vitamin D supplementation for babies and toddlers. This may be explained by the finding from the Bounty Word of Mum survey that almost three-quarters (73 per cent) of mothers said they had *never* been advised to give a vitamin supplement to their baby or toddler.

Parents participating in the research workshops generally knew that they should not add salt and sugar to their children's food, but practical exercises in the workshops revealed that some parents had poor label-reading skills so could not always identify pre-prepared foods or drinks that were high in salt or sugar.

### Parents' experience of services

The Bounty Word of Mum survey found that between a quarter and a third (27 per cent) of mothers think they did not receive enough information and advice on formula feeding, weaning (27 per cent) and toddler nutrition (32 per cent). Just under one-fifth (18 per cent) of mothers think they did not receive enough information on breastfeeding.

More than a third of mothers who took part in the Bounty Word of Mum survey also thought that the advice they did receive on each of these subjects was confusing and contradictory. In this case, weaning was the most problematic area, with 54 per cent of mothers finding advice on this subject to be confusing and contradictory.

The conversations with parents that took place in our research workshops demonstrated that mothers' experiences of breastfeeding support services varied hugely. Some mothers felt they had not received enough help while others were very satisfied with the help they'd received. However, the support that was given was not always welcome. Some mothers experienced an unwelcome level of pressure to breastfeed, while several others mentioned that they had been encouraged to use infant formula when they did not wish to. Each of these experiences damaged mothers' relationships with health-care professionals.

Experiences with introducing solid food also varied hugely. Most mothers had very little professional support with weaning and relied mainly on informal support or information they found for themselves. However, mothers in one workshop group had been invited to attend professional weaning workshops at a children's centre.

A great many of the parents taking part in the workshops also highlighted the issue that the advice on weaning they had been given was often contradictory and inconsistent. Most mothers agreed that better access to authoritative, consistent advice on weaning would be helpful for parents. Mothers felt there was even less support and advice available on the subject of toddler nutrition than there was for weaning, as health visitors focused more time on supporting parents with babies. One mother commented 'you are really just left to your own devices'. Therefore, information about weaning and toddler nutrition were particularly identified as key gaps in the support available to parents.

### Recommendations

This report recommends that early childhood nutrition needs to occupy a more central position in both public health and early education policies. Nutrition for young children is clearly an issue that cuts across the responsibilities of the Department of Health and the Department for Education, demanding a joined-up policy approach that makes use of the substantial infra-



structure spread across the country (including health services, children's centres and nurseries) to provide clear, reliable and evidence-based advice and support for parents.

However, public services are not the only sectors in this arena. The report demonstrates that early childhood nutrition is a complex, and sometimes contested area, in which a multiplicity of individuals and organisations are competing to inform, influence and support parents' choices. This has led to a situation in which many parents feel confused and anxious about how they can make sure their babies and toddlers receive a healthy diet.

There is no single action that can be taken in isolation to improve early child nutrition. Instead, a range of measures are needed to reconcile and make use of the influence and trust commanded by this diverse set of actors.

These recommendations are not intended as an exhaustive or prescriptive list. They draw on the research findings contained in this report to suggest a series of key measures that could be taken to strengthen the quality and consistency of information, advice and support on early childhood nutrition that is available to parents in the UK.

These are the recommendations:

- 1 The Government should embed early childhood nutrition indicators in key developmental checks and frameworks measuring child poverty and health inequalities.
- 2 The Department of Health must build the nutritional knowledge of health and early years professionals by providing access to evidence-based training materials.
- 3 The Department of Health should conduct a national public health campaign to inform parents of the risk of vitamin D deficiency and the benefits of vitamin supplementation for mothers, infants and toddlers.
- 4 Health and wellbeing boards should have a statutory duty to commission wraparound services to provide mothers with access to timely information and support with breastfeeding at all times during pregnancy and early infancy.
- 5 Health services should provide clear and consistent advice on safe bottle feeding to parents who need it.

- 6 The Department of Health must work with all stakeholders to build a consensus around guidelines on the earliest age at which parents can safely introduce solid foods into their babies' diets.
- 7 The Department of Health should refresh its Start4Life and Change4Life strategies to develop clear messages on healthy eating for the toddler age group.
- 8 Health and wellbeing boards should have a statutory duty to commission local services to provide timely and consistent advice for parents on the introduction of solid foods and toddler nutrition.
- 9 The Department of Health, online parenting forums and brands and retailers that parents trust should work together to disseminate consistent and trustworthy advice on early childhood nutrition to parents.
- 10 The Department for Education should work with children's centres and nurseries to share good practice on how they can build their role as hubs of expertise and support for parents on early childhood nutrition.
- 11 The Department of Health and Department for Education should build the evidence base on effective interventions to improve early childhood nutrition and provide information and guidance to health and wellbeing boards and other local commissioners.

The full recommendations are outlined and discussed in detail in chapter 10 of this report.

# SECTION 1

## THE IMPACT OF EARLY CHILDHOOD NUTRITION



# 1 Why is early childhood nutrition important?

A growing body of evidence suggests that the nutritional intake children receive, and the way they receive it, has wide ranging effects on outcomes in both childhood and later adult life. Although there is some debate about exactly which nutritional practices are best, it is clear that the quality, quantity and timing of nutritional intake, and the nature of feeding practices at different ages, all have important ramifications. Nutrition lays the foundation not just for children's physical health, but also for their cognitive, behavioural and motor development, impacting on their intellectual ability and emotional resilience. In this way, food and nutrition have a vital role in shaping the society we live in today.

A large body of recent research has investigated the impact of feeding babies breast milk or formula milk on infection rates, childhood weight gain, allergy development and cognitive and behavioural development. It has also investigated the importance of the timing of the introduction of formula milk and solid foods into children's diets.

## Health and developmental benefits associated with breastfeeding

Current guidance by the World Health Organisation (WHO) and the National Institute for Clinical Excellence (NICE) encourages the promotion of exclusive breastfeeding (meaning no intake other than breast milk) for the first six months of a child's life, after which breastfeeding can continue for as long as the mother and baby like, alongside introduction of a more varied diet including solids.<sup>7</sup>

An important reason for the recommendation of breastfeeding rather than formula feeding is the protective role that

breastfeeding appears to have against the development of infections in babies. Infections are a common cause of morbidity in infants, and often lead to GP or hospital visits that are distressing to families and costly to the NHS. The main reasoning for the recommendation that children be fed breast milk is that breast milk – and especially colostrum (the first milk produced by mothers' bodies for when infants are first born) – is rich in various beneficial nutrients, which are thought to 'set up' the baby's immune system.<sup>8</sup> Antibodies from the mother's milk protect the baby from infections that the mother has had in the past. Later on breast milk is also deemed important in passing on new antibodies that mothers develop when they fight new illnesses, and thus further reduces the chances of the infant developing illnesses as they get older.<sup>9</sup> In their 2010 study, Ladomenou et al found that exclusively breastfed babies were less likely to experience an infection in the first year of life than babies that were not exclusively breastfed. They suggest that bottle feeding may be more risky than breastfeeding as it may result in an increased risk of the baby being exposed to environmental pathogens if the bottle is not prepared in a sterile manner. They also suggest that the position bottle-fed babies are held in might influence the child's risk of ear infections.<sup>10</sup>

Although studies sometimes use different definitions of 'exclusive' or 'partial' breastfeeding and show breastfeeding to have slightly different health benefits, overall a protective effect against infections is found. A study by Quigley et al in 2007 used longitudinal data from the Millennium Cohort Survey and concluded that infants whose only intake was breast milk had a lower risk of hospitalisation for diarrhoea and lower respiratory tract infection than babies of the same age who were not breastfed.<sup>11</sup> This study found that partial breastfeeding (defined as receiving breast milk and some other milk and/or solids) had a weak protective effect, which was not statistically significant. The authors estimate that 53 per cent of diarrhoea hospitalisations could have been prevented each month if babies were exclusively breastfed, and 31 per cent could have been prevented if babies were partially breastfed. Similarly, 27 per cent of hospitalisations for lower respiratory tract infections could have

been prevented each month by exclusive breastfeeding and 25 per cent by partial breastfeeding. Further analysis found that the protective effect of breastfeeding for both diarrhoea and lower respiratory tract infection wears off soon after breastfeeding ceases.<sup>12</sup>

Other studies show similar results. For example, a study of 674 infants in Scotland found that the incidence of gastro-intestinal illness during the first 13 weeks of life in infants who were exclusively breastfed for 13 weeks or more was 2.9 per cent (after adjusting for confounders), whereas those who were exclusively artificially fed was 15.7 per cent. In this study partially breastfeeding (defined as breastfed for 12 weeks or more but introducing supplements before that time) appeared to have a weak protective effect, with gastro-intestinal incidence among this group of 5.1 per cent.<sup>13</sup>

Another study of infants, in Crete, found that breastfeeding exclusively for six months compared to partial breastfeeding (defined in this study as breast milk alongside formula milk or solids) or exclusive formula feeding was more protective against a range of infections, including thrush and gastro-intestinal problems, and that the closer exclusive breastfeeding lasted to six months, the less likely infants were to have infections. In this study, partial breastfeeding did not appear to have any protective effect, which led the authors to conclude that the immunomodulatory effect of breast milk might be hampered by the introduction of formula feeding, or that there is a threshold level for the passive immunity conferred to the infant by secretory immunoglobulin A and other protective complexes in breast milk is needed, and that this is hampered by the introduction of formula or solids.<sup>14</sup>

### Breastfeeding and reduced risk of obesity

There is now a large body of evidence that babies who are not breastfed are at greater risk of becoming overweight or obese in childhood. Both UK and international cross-sectional and longitudinal studies have found similar apparently protective effects of breastfeeding on overweight and obesity in childhood.

For example, a review of evidence published by the Scientific Advisory Committee on Nutrition (SACN) in 2011 identified two meta-analyses (published in 2004 and 2005) that each provide evidence for the protective effect of breastfeeding, in comparison with formula feeding, against childhood overweight and obesity.<sup>15</sup> Another meta-analysis included in this review also found the duration of breastfeeding to be important: ‘Up to 9 months’ duration, each month of breastfeeding was associated with a 4 per cent decrease in risk [of overweight].’<sup>16</sup> Therefore, a variety of studies cited in meta-reviews suggest that both exclusivity of breastfeeding and duration appears to be associated with children’s later risk of obesity and overweight.<sup>17</sup>

However, as with infection rates the strength and reliability of this evidence has been debated, because there are many other potential confounding factors that may also be driving these outcomes. For example, evidence from a study by Reilly et al suggests that breastfeeding is only a protective factor against obesity at age 7 when the mother did not smoke during pregnancy and when other risk factors are not controlled for. Reilly et al’s analysis of potential factors contributing to obesity in data available from the Avon Longitudinal Study identified an interaction effect between obesity and smoking in pregnancy: ‘Breast feeding in women who did not smoke during pregnancy (but not in women who smoked during pregnancy) was significantly associated with a reduced risk of obesity at age 7 years.’<sup>18</sup> Reilly et al suggest that this is because the exposure to inhaled smoke impacts on the unborn fetus and affects its ability to regulate appetite. This relationship has been observed in other studies too.<sup>19</sup>

However, while there is evidence that the impact of breastfeeding on child obesity is tempered by other environmental factors, the meta-reviews cited above provide compelling evidence that, at a population level, breastfeeding is likely to have substantial, preventative effects against childhood obesity and overweight. This has led the SACN review to conclude, ‘It is nevertheless clear that exclusively breastfed babies from a wide range of backgrounds show a distinctive pattern of early weight gain different to that of babies artificially fed.’<sup>20</sup>



There is also evidence that the protective effect of breast-feeding continues into adulthood.<sup>21</sup> A 2007 review of evidence by Singhal and Lanigan commissioned by the UK Department of Trade and Industry, also concluded that ‘there is now good evidence to support a benefit of breastfeeding for long-term obesity risk, an effect possibly related to the slower growth and relative undernutrition associated with breastfeeding compared with formula feeding’.<sup>22</sup> SACN’s more recent review published in 2011 also concluded that babies who are not breastfed ‘are more likely to be obese (show increased BMI) in later life’.<sup>23</sup> However, this review pointed out the many demographic characteristics that may contribute to infant feeding behaviours such as ‘social class, mother’s educational attainment, smoking behaviour, and ethnicity’.<sup>24</sup> Therefore, ‘Observed relationships between infant feeding method and long-term outcome are... highly prone to confounding’ and as such, these studies must be interpreted with caution.<sup>25</sup>

### Breastfeeding and cardiovascular health

The recent SACN review of the influence of early nutrition on later life health outcomes also observed that ‘currently there is inconsistent evidence that being breastfed influences adult cardiovascular mortality’.<sup>26</sup> However, for certain cardiovascular health states – namely cholesterol and diabetes – the relationship is more certain:

*Overall, the epidemiological data show that formula-fed infants have lower blood cholesterol levels initially; however adults who were breastfed, particularly if exclusively breastfed, have lower blood cholesterol concentrations than those who were not breastfed.*<sup>27</sup>

Not being breastfed as an infant was also found to be associated with ‘slightly higher blood pressure’ in adulthood.<sup>28</sup>

There is also evidence that rapid infant growth, associated with formula feeding, is strongly related to the risk of later developing diabetes, especially among children born small and thin as infants, but who later go on to gain the most weight. The

SACN report concludes that ‘overall, the epidemiological evidence suggests that infants who are not breastfed are at greater risk of type 2 diabetes in later life’.<sup>29</sup>

### Breastfeeding and behavioural development

There is also some evidence suggesting that breastfeeding is associated with improved behavioural development in young children. In a study of children in the Millennium Cohort Study (MCS), breastfeeding or mixed-feeding for 4 months or longer was associated with lower odds of parent-rated behavioural problems at age 5 than when children were fed with formula. This association applied for infants born at full-term, even when controlling for a number of potential confounding factors. Explanations for this association are unclear.<sup>30</sup>

One possible explanation relates to the large amounts of essential fatty acids found in breast milk, which are known to be important to the development and function of the brain and central nervous system. However, over the last few decades these have been added to formula milk, and it is thus unlikely that this factor was relevant for children in this study. Similarly the explanation that breastfeeding leads to more interaction between the mother and the child and thus better learning of acceptable behaviours is also doubtful, as the association held even when controlling for mother–baby interaction indicators. Therefore the authors suggest that the results could be because ‘formula feeding is associated with infections and hospitalisations during infancy, which could lead to behavioural problems in children, perhaps due to time spent separated from the parents’.<sup>31</sup>

However, not all studies have linked breastfeeding to improved behaviour. Another cross-sectional study found that infants who were breastfed or mixed-fed at three months of age were on average rated by their mothers as having more challenging temperaments. However, this could be attributable to parental misperception, or other factors affecting infants, including that mothers who breastfed scored temperaments differently from those formula feeding. Also, as the authors note,

the challenging temperaments noted in this study – for example greater crying – could be a natural process to signal nutritional demands to parents and may not actually be a negative thing.<sup>32</sup>

### Breastfeeding and cognitive development

Yet another benefit accredited to breastfeeding is its propensity to affect children's IQ levels, and motor and cognitive development positively. For example, in 2006 Quigley et al analysed data on infants taking part in the MCS and found that breastfeeding has a positive effect on the attainment of gross motor milestones. The proportion of infants who mastered key developmental milestones increased with duration and exclusivity of breastfeeding. The authors found that infants who had never been breastfed were 50 per cent more likely to have gross motor coordination delays than infants who had been breastfed exclusively for at least 4 months (10.7 per cent vs 7.3 per cent). Having any breast milk at all was also positively related to development: infants who had never been breastfed were 30 per cent more likely to have gross motor delays than infants who were given some breast milk for up to 2 months (10.7 per cent vs 8.4 per cent). For gross motor delay these results were still significant even when various biological, socioeconomic or psychosocial factors were accounted for. Infants who were never breastfed had at least a 40 per cent greater likelihood of fine motor delay than infants who were given breast milk for a prolonged period. However, the association between breastfeeding and fine motor delay was explained by other biological, socioeconomic and psychosocial factors.<sup>33</sup>

Another study by Quigley et al also found that among UK children, breastfeeding is associated with improved cognitive development, particularly in children born preterm, when controlling for a number of confounders.<sup>34</sup> Although there is always a risk of confounding by factors unaccounted for, in Brior and Lawlor's examination of data from two countries with different social contexts (England and Brazil) they found that breastfeeding has an impact on child IQ at age 4, even when confounding factors were controlled for.<sup>35</sup>

In addition to what babies are fed, the way in which they are fed appears to be related to cognitive outcomes. There is only emerging scientific evidence on this, but one recent analysis of data from the Avon Longitudinal Study suggests that babies who were ‘schedule fed’ rather than fed ‘on demand’ went on to perform less well at school. After controlling for a wide range of potential confounders, schedule-fed babies performed around 17 per cent of a standard deviation below demand-fed babies in standardised tests at all ages, and four points lower in IQ tests at age 8 years. The authors suggest that there is some causal impact of feeding method on cognitive outcomes. They hypothesise that this could be due to the content of milk and the biological benefit to the brain of feeding on demand, or because babies fed on demand develop less ‘passive’ personality traits.<sup>36</sup>

### Introducing solid food

The above evidence suggests that breastfeeding exclusively for four to six months (without introducing formula milk or solid foods) is protective to infants’ health and may also support improved social and cognitive development. However, some studies have suggested that the evidence supporting the WHO and NICE recommendation of exclusive breastfeeding to six months (rather than four months), and not introducing solid foods until around six months, is weak. A 2007 meta-review of the evidence on breastfeeding by Fewtrell et al suggests:

*A reasonable interpretation of the available scientific data is that there are currently insufficient grounds to confidently recommend an optimal duration of exclusive breastfeeding of 6 as opposed to 4–6 mo[nths] for infants in developed countries. In fact, the data suggest that it is plausible that breast milk may not meet the full requirements for energy and certain micronutrients of the average infant at 6 mo[nths] of age.<sup>37</sup>*

Subsequent evidence that emerged from Quigley et al’s analysis of UK MCS data found that the age of starting solids was not significantly associated with diarrhoea or lower respiratory tract infection hospitalisation, once the baby’s

experience of breastfeeding or formula feeding was controlled for.<sup>38</sup> SACN's 2011 review observed that 'formula-fed infants tend to be introduced to solids earlier than those breastfed'.<sup>39</sup> Therefore, if a study does not control for the type of milk feeding before and during the introduction of solids, negative health effects associated with formula feeding might wrongly be attributed to the early introduction of solid foods.

Griffiths et al's 2009 analysis of the MCS found that *duration* of breastfeeding was associated with the speed of the infant's weight gain: infants breastfed for less than four months gained weight more rapidly (increasing the risk of obesity) than those breastfed for longer, and this association remained after adjustment for the age at which solid foods were introduced. This may suggest that exclusive breastfeeding for at least four months is more important to reduce the child's risk of obesity than the distinction between whether solid food is introduced at four months or later. However, as the authors note, we cannot rule out reverse causation in these results:

*Mothers whose infants gain weight rapidly may feel that breast milk does not meet their child's energy requirements adequately and therefore either supplement their diets with solid foods, or discontinue breastfeeding and provide formula milk.*<sup>40</sup>

Further research examining the impact on infection rates of partial breastfeeding (defined as receiving only breast milk and formula milk *and not solids*), versus exclusive breastfeeding (defined as receiving only breast milk) and exclusive formula feeding (defined as receiving only formula milk), for different durations and while *separately* examining the impact of age of introduction of solids, would be beneficial.

## Diet, healthy development and educational attainment

Some evidence suggests that diet has an important impact on one's ability to concentrate and perform well in mental tasks. For example, a number of studies on adults have highlighted the

importance of eating breakfast, showing that skipping breakfast can result in low glucose levels, which hinders memory.<sup>41</sup>

However, there is little evidence available of the association between young children's feeding behaviours in the pre-school years (following the introduction of solid foods) and their cognitive development. Demos's original secondary analysis of the MCS (see chapter 2) will explore this link between regular mealtimes, eating breakfast and children's cognitive and behavioural development.

There is some evidence of the relationship between dietary intake and educational attainment in older children. For example, eating breakfast has been linked to increased educational attainment in school-age children. In a study by the School Food Trust, schools with breakfast clubs showed a statistically significant 0.72 point increase in the Key Stage 2 average point score in the year immediately after the breakfast club was introduced. This difference was sustained in subsequent years, although there was no further increase in average Key Stage 2 scores. There was no corresponding change in the control schools that did not have breakfast clubs.<sup>42</sup>

Another study evaluated the impact of a programme that improved the quality of school dinners by comparing Key Stage 2 outcomes in primary schools in one London borough before and after the changes were introduced. The educational outcomes of children from other local education authorities that did not experience these reforms were also compared to provide a control group. This study found that healthier school dinners for primary school children led to improved Key Stage 2 test results, particularly in science and English. There was also an average drop in sickness absence by 14 per cent during the period covered by the study.<sup>43</sup>

Other studies have provided evidence that a junk food diet (high in fat and sugar but low in other nutrients) may have a negative impact on children's development and educational attainment. For example, an analysis of data from the Avon Longitudinal Study showed that children eating a diet high in 'junk food' at age 4½ years were more likely to be in the top 33

per cent on the strengths and difficulties hyperactivity sub-scale at age 7.

### Omega-3 polyunsaturated fatty acids

There are two main categories of polyunsaturated fatty acids: omega-3 and omega-6. In a healthy diet, the ratio of omega-6 consumption to omega-3 should be between 1:1 and 4:1. However, research suggests that because of the increased consumption of vegetable oils in Western diets, at the population level, the average ratio between these two varieties of polyunsaturated fatty acids in most adults' diets is between 10:1 and 20:1.<sup>44</sup>

SACN's 2011 report cited evidence from a systematic review that long chain omega-3 polyunsaturated fatty acids supplementation during 'low risk' pregnancies 'may enhance pregnancy duration and infant head circumference'.<sup>45</sup> Another review of the benefits of supplementation in 'high risk' pregnancies found this to be 'associated with reduced risk of delivery before 34 weeks of gestation'.<sup>46</sup> Evidence from a cohort study suggested that mothers who had low concentrations of omega-3 and high concentrations of omega-6 during the early stages of pregnancy were more likely to experience 'reduced fetal growth'.<sup>47</sup>

A 2007 study by Hibbeln et al analysing data from the Avon Longitudinal Study tested the effect of consuming high levels of fish during pregnancy (an important source of long chain omega-3 fatty acids) on children's subsequent development. Within this cohort of pregnant mothers, 65 per cent ate between 1g and 340g of fish each week, 23 per cent ate more than 340g each week and 12 per cent ate no fish during their pregnancy.<sup>48</sup> This study found that mothers who consumed less than 340 grams of fish were more likely to have children who subsequently scored in the lowest 20 per cent for verbal IQ at age 8, compared with those who ate more fish, even when controlling for various confounders.<sup>49</sup>

As well as impacting on children in *gestation*, analysis of a US survey of 4,000 schoolchildren aged 6–16 has suggested that

a diet high in omega-3 fatty acids in childhood is also beneficial to children's cognitive functioning.<sup>50</sup> This was especially important for girls. Other research also recommends that omega-3 is crucial to young infants, to help their developing brain,<sup>51</sup> although this evidence is contested.<sup>52</sup>

## Iron

Iron is considered key to the development of the infant brain, particularly because of its impact on the dopamine receptors and myelin tissue, which affects mental and motor development.<sup>53</sup> In 2001 Sheriff et al analysed data from the Avon Longitudinal Study of Parents and Children to explore the relationship between haemoglobin concentrations in children's blood (haemoglobin acting as a proxy for iron content) at 8 months, 12 months and 18 months, and children's developmental outcomes at 18 months of age. This study found that 'developmental outcome at 18 months of age, particularly motor development, is associated with haemoglobin concentrations in children as young as 8 months'. This was the case even once potential confounding influences were controlled for.<sup>54</sup> The authors of the study concluded that low concentrations of haemoglobin in children aged 8 months 'are associated with impaired motor development at 18 months'.<sup>55</sup> The early infant period appears to be crucial, as even when children were not iron deficient at 12 or 18 months, their cognitive development at 18 months was affected if they were iron deficient at 8 months.<sup>56</sup> This relationship between iron deficiency and development has been found in various studies, although because of the possibility of confounding by factors not controlled for and the absence of randomised controlled trials, some authors have been reticent to claim causality.<sup>57</sup>

Current UK guidance does not recommend iron supplements for infants under 6 months old, and iron supplements are not part of the national Healthy Start scheme. Indeed, a recent SACN report called *Iron and Health* states: 'Infants have no need for exogenous iron in the first six months of life irrespective of whether they are breastfed or fed breast milk substitute.'<sup>58</sup> The



authors argue that from 6 months of age, the introduction of solid foods should adequately protect against iron deficiencies.<sup>59</sup> However, the SACN report does recognise that toddlers are an age group that is particularly at risk of iron deficiency and recommends that health professionals should 'be alert to the increased risk of iron deficiency anaemia in these groups'.<sup>60</sup> This report also argues that more research on the impact of iron supplements on infants and toddlers needs to be undertaken.<sup>61</sup>

After weaning, the main cause of iron deficiency in UK toddlers seems to be lack of red meat consumption in the post-weaning diet, and high consumption of cow's milk, or breast milk, as a main drink after weaning. This is because cow's milk (and breast milk to a lesser extent) is low in iron and if children consume a lot of milk, their appetite (and likelihood of consuming solids that do contain more iron) is reduced.<sup>62</sup>

### Learning feeding behaviours in early childhood that persist in later life

Recent UK evidence from the Early Bird Study suggests that for many overweight children weight gain appears to precede inactivity rather than the other way around, and that it is once children are overweight that they reduce their activity levels. This suggests that calorie reduction rather than physical activity is most important to weight reduction.<sup>63</sup> Further research from this study emphasises that the focus of policy intervention *should* be on these early years. The Early Bird study finds that over 90 per cent of the excess weight in girls, and over 70 per cent in boys, is gained before the child is aged five. These findings support a need to redirect public health initiatives towards an earlier period in childhood, rather than on primary school, as is currently the main policy focus.<sup>64</sup>

Receiving a balanced and varied diet in the early years is also important because there is a variety of evidence that this lays the foundation for children's subsequent eating habits and food choices. Analysis of the Avon Longitudinal Study of Parents and Children data found that children's dietary patterns remained consistent between the ages of 4 and 7. Therefore children who

were classified as having a ‘junk’ diet, a ‘traditional’ British diet or a ‘health-conscious’ diet at age 4 were likely to have broadly the same diet at age 7.<sup>65</sup> Another large longitudinal study found similar results when considering dietary habits of white children aged between 5 and 13.<sup>66</sup> A third study, involving babies aged 6 months, found that only babies who were used to drinking sweetened water demonstrated a preference for sweetness during a trial. Therefore, while babies are usually believed to have a ‘natural’ preference for sweetness, there is some evidence that preferences are also influenced by babies’ exposure to sweet tastes.<sup>67</sup>

Collectively these studies emphasise both the importance of children establishing healthy family routines and eating habits early on – as these are likely to persist later in childhood and potentially into adulthood – and the important role of parents and other adult role models in enabling children to develop healthy preferences by choosing which foods children are exposed to.

We will explore the relationship between children’s early feeding behaviours and their developmental outcomes in more detail in chapter 2, which presents the findings from our new secondary analysis of the Millennium Cohort Study.

## 2 How does feeding behaviour relate to children's outcomes in the Millennium Cohort Study?

### Background

As studies cited in the previous chapter have shown, there is a variety of evidence linking children's early experiences of (breast or formula) feeding to a range of health outcomes, such as stomach upsets, hospital admissions and normal or excess weight. There is also some evidence linking breast and formula feeding with children's physical coordination at 9 months and behavioural development at 5 years.

This investigation aims to build on existing evidence to understand the type and extent of influence that other types of feeding behaviour during early childhood have on children's subsequent social and developmental outcomes.

For this purpose, Demos conducted secondary analysis of the Millennium Cohort Study (MCS), a longitudinal cohort study of approximately 15,000 families living in the UK initiated in 2000, to explore how feeding behaviours recorded in the survey relate to a selection of key developmental outcomes at ages 3, 5 and 7.

Available waves of the survey included:

- MCS wave 1: age 9 months (2001–03)
- MCS wave 2: age 3 years (2004/05)
- MCS wave 3: age 5 years (2006/07)
- MCS wave 4: age 7 years (2008)

## Variables

Like most research of this nature, we required three types of variables to conduct the analyses:

- dependent or outcome variables
- independent variables or regressors
- control variables or covariates

We will briefly explain each of these in turn.

### Dependent or outcome variables

The main outcomes that were included in the analysis were the child's BMI centile, the child's social and emotional development, and the child's cognitive development.

### *The child's weight*

In this analysis we used the 'overweight' and 'obese' flags available in the dataset (calculated according to the child's BMI). The type of analysis employed was mainly logistic regression and for this purpose the values were dichotomised between 'overweight or obese' and 'normal'.

### *Social and emotional development*

Each child's social and emotional development was measured according to the child's total 'difficulties score'. This is the sum of four modules included in the Strengths and Difficulties Questionnaire at waves 2, 3 and 4 of the survey. The type of analysis employed was mainly logistic regression and for this purpose the values were dichotomised between the children whose scores were in the lowest 40 per cent of the sample (for example they had the fewest social and emotional difficulties) and children whose scores fell within the remaining 60 per cent. We have called the two-fifths of children with the fewest social and emotional difficulties at each wave the 'best behaviour group'.

### *Cognitive development*

In the MCS there are two tests of cognitive development at age 3 (MCS<sub>2</sub>), three tests at age 5 (MCS<sub>3</sub>) and three tests at age 7 (MCS<sub>4</sub>). As above, scores were dichotomised between the 40 per cent highest (best) scores and the 60 per cent lowest scores on these tests. More detail on the individual ‘cognitive development tests’ employed in this analysis is provided in appendix C.

### *Independent variables or regressors*

These include aspects of the children’s lives that are thought likely to have an effect on the outcome variable. In this case, the main regressors are indicators of the child’s feeding behaviour at different ages:

- whether or not the child ‘feeds regularly’ at waves 1, 2, and 3 of the survey (aged approximately 9 months, 3 years and 5 years)
- whether the child ate breakfast every day at waves 3 and 4 of the survey, (aged approximately 5 and 7 years)
- whether the child was perceived to be a ‘fussy eater’ at wave 4 of the survey

Exact wording for each question is provided in appendix C.

### *Control variables or covariates*

We included control variables in each regression we ran. These are other variables that could also have an impact on the outcome variable, so by including the controls we are closer to assessing accurately the independent effect of the regressor(s) on the outcome variable. By controlling for these potential influence factors, we reduce the possibility that any results in the outcome (for example the child’s behaviour or reading skills) are the result of factors other than our main regressor: feeding behaviour.

Therefore, we coded a range of key measures on the child’s background, family background and home environment. These included the child’s age, gender and ethnicity, and parental and family background factors including ethnicity, mother’s age,

parents' marital status, home tenure, family income and mother's level of education. In the regressions that included outcome variables related to behaviour or educational attainment, we also included covariates to act as proxies for the amount of care and educational support that the child receives at home, such as how often the child is read to, and whether anybody at home helps the child with reading. We also controlled for two factors that could impact on the child's literacy:

- Is English the only language spoken in the household?
- Does the child understand English?

All of the specific measures are listed in appendix C.

## Findings

The results from this analysis provide new evidence that feeding behaviour in early childhood is associated with a variety of developmental outcomes, including children's weight, social and emotional development and cognitive development. We will explore this evidence of the impact of each type of feeding behaviour below.

### Regularity of feeding

According to parents' responses at wave 1 of the MCS, 77 per cent of infants aged 9 months fed at about the same time each day and 23 per cent did not.<sup>68</sup> By the time the children were aged 3, 90 per cent of them ate meals at regular times. At age 5, 92 per cent of children ate meals at regular times. Therefore, at each stage of the survey the number of children who did not eat at regular times decreased.

Our first set of analyses looked at the correlation between eating regularly at 9 months, age 3 and age 5 (see appendix C for findings in full). We found that there was a significant correlation at each stage, which suggests that feeding habits established at age 3 are likely to continue later in childhood (at least until age 5). However, there is a weaker relationship between feeding

habits at age 9 months and those at age 5, suggesting longer-term eating patterns are set more firmly in later toddler years.

### Feeding regularly and social and emotional development

The next set of analyses explored the relationship between feeding regularly (or not) at each stage, and children's social and emotional development at ages 3, 5 and 7. For this analysis, the 40 per cent of children who had the fewest emotional and behavioural difficulties at each wave, as measured by the Strengths and Difficulties Questionnaire (SDQ), are referred to as the 'best behaviour group'.

### Regularity of feeding at 9 months (MCSI) and social and emotional development

We first looked at whether feeding regularly at 9 months predicted children's social and emotional development at age 3, 5 and 7. We found that regularity of feeding at 9 months was not a significant predictor of the child's SDQ score at age 3. This may be due to the very small sample size, as only a small proportion of children participating in the MCS had an SDQ questionnaire completed for them at age 3 (n = 256).

Regularity of feeding at 9 months was found to be a significant predictor of SDQ scores in each of the later life stages; for example, regularity of feeding at 9 months was a significant predictor of children's SDQ scores at age 5. Surprisingly, children who usually or always fed regularly at 9 months were 16 per cent *less likely* to be in the 'best behaviour group' (top 40 per cent on the SDQ) at age 5 (when controlling for other demographic factors).<sup>69</sup>

However, we found that children who usually or always fed regularly at 9 months were 22 per cent *more likely* to be in the 'best behaviour group' by age 7, when controlling for other demographic and developmental factors.<sup>70</sup>

Therefore, the previous and unexpected negative effect of regular feeding at 9 months on behaviour at age 5 seems to have reversed by age 7. Further research is needed to explore whether this is an anomaly in the data or whether the beneficial effects of

early regular feeding are not established until later childhood. Once data collected at wave 5 (age 11) of the MCS are available, this may provide a better understanding of the interrelation between feeding at 9 months and later life behaviours.

### *Regularity of feeding at age 3 (MCS2) and social and emotional development*

The results from our analyses exploring the relationship between the regularity of feeding at age 3 and children's behaviour at ages 5 and 7 produce more clear-cut findings.

Regularity of feeding at age 3 was a significant predictor of children's SDQ scores at age 5. Children who usually or always ate regularly were 72 per cent more likely to be in the 'best behaviour group' at age 5 than children who did not eat regularly, when controlling for other demographic and developmental factors.<sup>71</sup>

This was also the case at age 7; children who ate regularly at age 3 were 88 per cent more likely to be in the 'best behaviour group' at age 7, when controlling for other demographic and developmental factors.<sup>72</sup>

The fact that regularity of mealtimes at age 3 is a stronger predictor of SDQ scores at age 7 than at age 5 may suggest that there is a time lag in the effect of feeding habits on children's behaviour. However, it is important to note that this analysis can identify correlations between behaviours and outcomes, but cannot prove causation.

### *Regularity of feeding at age 5 (MCS3) and social and emotional development*

Whether or not children ate regularly at age 5 was also a significant predictor of children's SDQ scores at age 7. Children who usually or always eat regularly were 65 per cent more likely to be in the 'best behaviour group' at age 7 with controls for other demographic and developmental factors applied.<sup>73</sup> Again, as the regularity of mealtimes at age 3 was a stronger predictor of SDQ scores at age 7 than the regularity of mealtimes at age 5, this may suggest that there is a time lag in the effect of eating habits on behaviour.



### Feeding regularly and cognitive development

In this section we presented the results from analyses exploring the relationship between the regularity of feeding at ages 9 months, 3 years and 5 years and the child's level of cognitive development (measured by different tests) at ages 3, 5 and 7. In each case we have looked at the likelihood that a child who eats their meals at regular times will fall into the top 40 per cent of test scores.

#### *Regularity of feeding at 9 months (MCS1) and cognitive development*

The sample sizes of children who had cognitive development tests completed for them at age 3 were fairly small and we did not find any significant correlation between feeding regularly at 9 months and cognitive development test scores at age 3.

However, feeding behaviour at 9 months did significantly predict cognitive development scores in one out of the three cognitive development tests at age 5, and in all three tests at age 7. At age 5, we found that whether the child eats regularly at 9 months is a significant predictor of the child's British Ability Scales (BAS) Naming Vocabulary score at age 5. Children who usually or always ate regularly at 9 months were 29 per cent more likely to be in the top 40 per cent of BAS Naming Vocabulary scores at age 5 when controlling for other demographic and developmental factors. However, regularity of feeding at 9 months was not a significant predictor of scores in the BAS pattern construction test or the BAS Picture Similarity test at age 5.

At age 7, we found that children who usually or always eat regularly at 9 months are 20 per cent more likely to be in the top 40 per cent of BAS Pattern Construction score, 15 per cent more likely to be in the top 40 per cent of BAS Word Reading score and 20 per cent more likely to be in the top 40 per cent of Progress in Maths scores at age 7 when controlling for all other demographic and developmental factors.

#### *Regularity of feeding at 3 years (MCS2) and cognitive development*

Regularity of feeding at age 3 correlates with children's cognitive development scores in all three tests at ages 5 and 7. At age 5, we

found that children who usually or always eat regularly at age 3 are 28 per cent more likely to be in the top 40 per cent of Naming Vocabulary scores, 40 per cent more likely to be in the top 40 per cent of BAS Pattern Construction scores and 14 per cent more likely to be in the top 40 per cent of BAS Picture Similarity scores at age 5 when controlling for other demographic and developmental factors (table 1).

At age 7, we found that children who usually or always eat regularly at age 3 are 30 per cent more likely to be in the top 40 per cent of BAS Pattern Construction scores, 30 per cent more likely to be in the top 40 per cent of BAS Word Reading scores and 35 per cent more likely to be in the top 40 per cent of Progress in Maths scores at age 7 when controlling for all other demographic and developmental factors (table 2).

#### *Regularity of feeding at 5 years (MCS3) and cognitive development*

Regularity of feeding at 5 years was also found to be predictive of children's cognitive development scores in all three tests at age 7. We found that children who usually or always eat regularly at age 5 are 29 per cent more likely to be in the top 40 per cent of BAS Pattern Construction scores, 24 per cent more likely to be in the top 40 per cent of BAS Word Reading scores and 46 per cent more likely to be in the top 40 per cent of Progress in Maths at age 7 than children who did not eat regularly, when controlling for other demographic and developmental factors.

These findings show that there is a particularly strong relationship between the regularity of feeding at age 5 and progress in maths scores at age 7. Table 2 demonstrates that the predictive effect of regular feeding on Progress in Maths scores at age 7 continues to increase as the child gets older (children are 20 per cent more likely to get top scores if they eat regularly at 9 months, 35 per cent more likely if they eat regularly at age 3 and 46 per cent more likely if they eat regularly at age 5). In contrast, the predictive relationship between regularity of feeding and Word Reading test scores at age 7 seems to peak at age 3 (30 per cent), before reducing slightly to 24 per cent at age 5. This may suggest that age 3 years is a particularly important stage for children's language development, with

Table 1 **Predictive effect of regular feeding at each survey wave on cognitive development outcomes at age 5**

Likelihood of being in top 40% of test scores			
	BAS Naming Vocabulary test (age 5)	BAS Pattern Construction test (age 5)	BAS Picture Similarity test (age 5)
Usually or always feed regularly at 9 months	29% more likely	Not significant	Not significant
Usually or always eat regularly at 3 years	28% more likely	40% more likely	14% more likely

Table 2 **Predictive effect of regular feeding at each survey wave on cognitive development outcomes at age 7**

Likelihood of being in top 40% of test scores			
	BAS Pattern Construction test (age 7)	BAS Word Reading test (age 7)	BAS Progress in Maths test (age 7)
Usually or always feed regularly at 9 months	20% more likely	15% more likely	20% more likely
Usually or always eat regularly at 3 years	30% more likely	30% more likely	35% more likely
Usually or always eat regularly at 5 years	29% more likely	24% more likely	46% more likely

feeding habits at that age therefore particularly important to support their development.

### Feeding regularly and weight

We also performed analyses to explore whether the regularity with which children ate predicted their weight at each wave of the MCS. We found that the regularity of children's mealtimes was not a significant predictor of children's weight (overweight or obese versus normal weight) at any wave of the survey.

### Eating breakfast

The MCS includes questions about how frequently the child eats breakfast at ages 5 and 7. At age 5, 91.5 per cent of children ate breakfast every day. At age 7, 93.2 per cent of children ate breakfast every day.

### *Eating breakfast every day and social and emotional development at age 7*

We conducted analyses to explore whether the regularity with which children ate breakfast at age 5 predicted various developmental outcomes at age 7 and found that children who eat breakfast daily are 57 per cent more likely to be in the 'best behaviour group' (scoring in the lowest 40 per cent of SDQ) than children who did not eat breakfast daily, when controlling for other demographic and developmental factors.<sup>74</sup>

### *Eating breakfast every day and cognitive development at age 7*

As above, there are three tests of children's cognitive development that are available in the MCS at age 7. These are the BAS Pattern Construction test, the BAS Word Reading test and the National Foundation for Educational Research's Progress in Maths test. We found that children who eat breakfast every day at age 5 are 34 per cent more likely to be in the top 40 per cent of Pattern Construction scores<sup>75</sup> and 68 per cent more likely to be in the top 40 per cent of BAS Word Reading test scores,<sup>76</sup> when controlling for other demographic and

developmental factors. Frequency of eating breakfast at age 5 was not a significant predictor of children's Progress in Maths test scores.

Therefore, as with the regularity of children's mealtimes, it does appear that eating breakfast is related to children's educational attainment, suggesting that the 8.4 per cent of children who did not eat breakfast every day at age 5 are at greater risk of poor educational attainment at age 7.

### *Eating breakfast every day and weight at age 7*

We also constructed a model to explore the relationship between eating breakfast every day at age 5 and children's weight at age 7. We found that children who eat breakfast every day at age 5 are 29 per cent less likely to be overweight or obese at age 7 than children, when controlling for other demographic and developmental factors.<sup>77</sup>

### *Fussy eating*

At wave 4 of the survey, when the cohort children were aged 7, parents were asked whether their child was a fussy eater (see exact question wording in appendix C). Overall, 23 per cent of parents felt their children were fussy eaters at age 7. We conducted analyses to explore whether this correlated with children's social and emotional development, children's cognitive development and children's weight.

### *Fussy eating and social and emotional development*

Children who are fussy eaters are 32 per cent less likely to be in the 'best behaviour group' (lowest 40 per cent of SDQ scores) at age 7 when controlling for other demographic and developmental factors.<sup>78</sup>

This suggests that fussy eating is related to children's behaviour, but it is not possible to identify cause and effect here (does fussy eating make problematic behaviour more likely or is it simply a symptom of poor behaviour?).

### *Fussy eating and cognitive development*

We also looked at the relationship between fussy eating and three tests of cognitive development at age 7. We found that whether the child is a fussy eater at age 7 is not a significant predictor of a child's Progress in Maths score at age 7, but was significant for the other two tests: children who are fussy eaters are 13 per cent less likely to be in the top 40 per cent of Pattern Construction scores and 13 per cent less likely to be in the top 40 per cent of BAS Word Reading scores at age 7, when controlling for other demographic and developmental factors. Therefore, it appears that children who are fussy eaters may be at slightly greater risk of poor educational attainment, but again we are not able to tell whether fussy eating is actually a proxy for behavioural difficulties, which might affect educational outcomes.

### *Fussy eating and weight*

Whether the child is a fussy eater at age 7 is a significant predictor of the child's weight at age 7. We found that children who are fussy eaters are 26 per cent less likely to be overweight or obese than children who are not fussy eaters, when controlling for other demographic factors.<sup>79</sup>

This is likely to be because children who are fussy eaters eat less, because they are more selective about what they will eat.

## Summary of key findings

These new analyses provide evidence that both regular mealtimes and eating breakfast daily influence children's behavioural and cognitive development, with children performing better on test scores if they demonstrate these regular eating habits. However, these effects vary between ages. For example:

- There is a weaker relationship between regularity of feeding at age 9 months and that at age 5 than between ages 3 and 5, suggesting that longer-term eating patterns are set more firmly in later toddler years.
- The slightly negative influence of regular eating at 9 months on children's behaviour at age 5 had apparently reversed by age 7.

- Regularity of mealtimes at age 3 was a stronger predictor of SDQ scores at age 7 than the regularity of mealtimes at age 5. This may suggest a ‘time lag’ effect.
- The predictive effect of regular feeding on Progress in Maths scores at age 7 continues to increase as the child gets older (children are 20 per cent more likely to get high scores if they eat regularly at 9 months, 35 per cent more likely if they eat regularly at age 3 and 46 per cent more likely if they eat regularly at age 5). Again, this may suggest a ‘time lag’ effect.
- The predictive relationship between regularity of feeding and Word Reading test scores at age 7 seems to peak at age 3, then reduces slightly at age 5.

This suggests there is a complex interaction between nutrition behaviours and different types of development but overall these findings indicate that parents should seek to establish regular mealtimes and ensure that children eat breakfast every day from a young age, to support good behavioural and cognitive development in later childhood. Analysis of further waves of the MCS (once they are available) will be helpful to confirm the trends identified above.





### 3 Is early childhood nutrition currently a problem in the UK?

As we have seen in chapters 1 and 2, early childhood nutrition has clear associations with children's health and development in later life, with some impacts stretching far into adulthood.

This chapter presents evidence that many young children in the UK are unfortunately very far from receiving a healthy diet, and suggests some of the impacts that this nutritional deficiency may be having on our society. Many of the nutritional foundations laid down in early childhood seem to be difficult to reverse or make up for later on in life, suggesting that early childhood nutrition is an urgent issue for policymakers' consideration.

#### Low rates of exclusive breastfeeding

As we have seen in chapter 1, there is firm evidence of the relationship between breastfeeding, good health and healthy weight in early childhood, while in the long term there is evidence that being breastfed is protective against experiencing high blood pressure, high cholesterol, type 2 diabetes and obesity in adulthood.<sup>80</sup> For these reasons, the Government is currently focusing on ways to encourage breastfeeding, with efforts being made to increase the rate of exclusive breastfeeding, and particularly to encourage mothers to continue exclusive breastfeeding to at least six months.

However, it is clear from national data that infant feeding in the UK is currently far from following recommended or optimal practice. The latest published data, from the 2005 NHS Infant Feeding Survey, suggest that only 45 per cent of babies are being exclusively breastfed (being fed only breast milk) at 1 week and 21 per cent at 6 weeks. At 6 months levels of exclusive breastfeeding were negligible.<sup>81</sup> These rates are among the lowest

in Europe and the developed world.<sup>82</sup> Indeed, the UK had the sixth lowest proportion of children who were ‘ever breastfed’ of OECD countries in around 2005. Proportions exclusively breastfed to three months were the fourth lowest of OECD countries, and proportions exclusively breastfeeding to 4 or 6 months compared similarly unfavourably.<sup>83</sup>

More recent data from the 2010 NHS Infant Feeding Survey are to be released in autumn 2012. Early results only report incidence rates for the initiation of breastfeeding rather than rates of exclusive breastfeeding later in infancy. The 2010 survey found that incidence of breastfeeding initiation had risen to 81 per cent in 2010 from 76 per cent in 2005, which may be indicative of other trends.<sup>84</sup> Nevertheless the low base rate of mothers exclusively breastfeeding to 4 or 6 months in 2005 means there is still a long way to go.

These rates are not equal across social groups, and we know that breastfeeding initiation remains highest among mothers in managerial and professional occupations. The 2010 Infant Feeding Survey found that across the UK 90 per cent of the mothers in a managerial or professional occupation initially breastfed, compared with 80 per cent of those in an intermediate role, 70 per cent of those in routine or manual occupations and 71 per cent of those who have never worked. There has been an increase in mothers who have never worked from 68 per cent in 2005 to 74 per cent in 2010.<sup>85</sup> Bearing in mind these strong social differences, and the apparent benefits of breastfeeding to later life outcomes and health, it is likely that breastfeeding inequalities may be contributing to health and social inequalities observed in the adult population.<sup>86</sup>

### Formula feeding and early introduction of solid foods

Low rates of exclusive breastfeeding in the UK are mostly attributable to the introduction of infant formula. Indeed, in 2005 three-quarters of all mothers had given their baby milk other than breast milk by the age of 6 weeks, with this proportion rising to 92 per cent by 6 months.<sup>87</sup>

A baby is also considered not to be ‘exclusively breastfed’

once solid foods are introduced, according to most definitions. The age at which solids are introduced to infants is thought to impact on a range of health issues, ranging from the risk of developing infections to the development of allergies.<sup>88</sup> Currently Department of Health guidance suggests solids should not be introduced until ‘about 6 months’,<sup>89</sup> but as we have seen above, some recent reviews of evidence suggest that there is a stronger evidence base for the recommendation that solid foods can safely be introduced between 4 and 6 months.<sup>90</sup>

Research suggests that the Government recommendation of introducing solid foods at ‘about six months’ (adopted in 2003<sup>91</sup>) is far from being adhered to by parents in the UK. Indeed, in the 2005 NHS Infant Feeding Survey, 51 per cent of infants were reported to have received solid foods before 4–6 months of age; 47 per cent had been introduced to solids after 4 months but before 6 months; and only 2 per cent had solids introduced after 6 months. Although the weaning age appears to be rising (with only 6 per cent of mothers introducing solids after 4 months in 1990, 9 per cent in 1995 and 15 per cent in 2000), recommendations are far from being met.<sup>92</sup>

Solid foods tend to be introduced at a younger age by mothers in Wales and Scotland, and by mothers who are in lower social grades or who have lower educational levels. Most of the increases in babies being weaned after 4 months that were observed between 2000 and 2005 were among mothers in the highest occupational and education groups.<sup>93</sup> This again poses a risk of widening health inequalities, and follows a common pattern where it is the most educated parents who adopt public health messages first.

### Childhood obesity in the UK

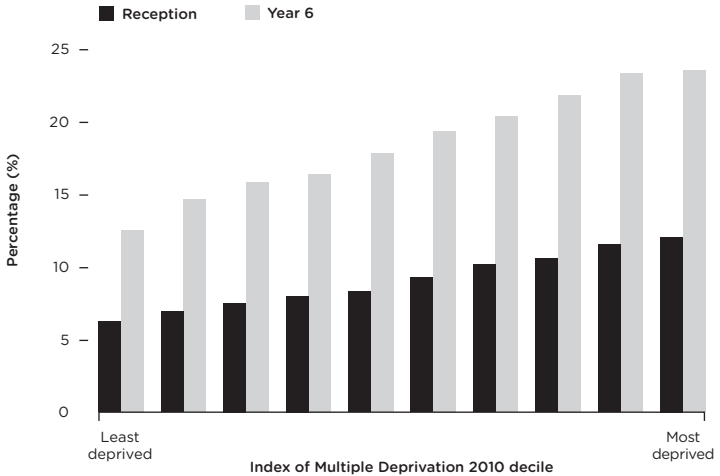
Rates of childhood obesity in the UK are startling. In England, obesity among 2–10-year-olds rose from 10.1 per cent in 1995 to 14.6 per cent in 2010, according to Health Survey for England figures.<sup>94</sup> Although there are some indications that the previous upwards trends may now be flattening out (with obesity among 2–10-year-olds peaking in 2005 at 17.3 per cent), it is too early to

tell if this represents a long-term change in the trend.<sup>95</sup> The 2007 Foresight Review predicted that if the prevalence of childhood obesity continues to rise, 25 per cent of young people aged under 20 could be obese by 2050, with a further 30 per cent of boys overweight and 45 per cent of girls.<sup>96</sup> Childhood obesity is highest among older children, but is still high at reception age. The 2010/11 National Child Measurement Programme showed that obesity prevalence among 10–11-year-olds (Year 6) was 19 per cent and among 4–5-year-olds (reception) was 9.4 per cent. Prevalence of child obesity and overweight have remained stable between 2008/09 and 2010/11 for children in reception, whereas the prevalence for children in Year 6 appears to be increasing.<sup>97</sup>

National statistics from 2010 show that around 11 per cent of English toddlers aged 2 are obese and a further 12–13 per cent are overweight.<sup>98</sup> In Scotland almost 11 per cent of 2–6-year-olds were found to be obese with a further 15 per cent overweight (national statistics define overweight as between the 85th and 95th BMI centiles and obesity as at or above the 95th BMI centile).<sup>99</sup>

Childhood obesity can lead to lower levels of fitness, increased severity of asthma and other respiratory diseases, increased risk of insulin resistance and type 2 diabetes, higher incidence of atherosclerosis, and increased risk of cardiovascular disease in childhood.<sup>100</sup> Obesity in childhood is also strongly related to obesity in later life (an overweight child has a 40–70 per cent chance of becoming an obese adult),<sup>101</sup> which poses increased risk of various diseases including type 2 diabetes, hypertension, coronary heart disease and stroke, osteoarthritis and cancer.<sup>102</sup> Morbidity and early mortality due to excess weight is currently estimated to cost the NHS more than £5 billion each year.<sup>103</sup> As well as these health costs, obesity in childhood and adulthood has various social costs that often are not considered. Indeed, social marginalisation and stigmatisation disproportionately affect overweight adults in various domains, ranging from education, to employment, healthcare and interpersonal relationships.<sup>104</sup> There is also evidence that overweight children are subject to bullying and stigmatisation from a range of sources, which can negatively impact on their

Figure 1 **Prevalence of obesity by deprivation decile in reception (age 4–5 years) and Year 6 (age 10–11 years) children, 2010/11**



Source: National Obesity Observatory, 'Child weight'<sup>105</sup>

self-esteem and educational attainment, and thus later job prospects and overall wellbeing.<sup>106</sup> Figure 1 shows the prevalence of obesity by deprivation decile for those aged 4–5 and 10–11 in 2010.

### Infants' and young children's diets and eating habits in the UK

Other information about toddlers' diets is also somewhat sparse. The main stage fieldwork of the Diet and Nutrition Survey of Infants and Young Children, which examines children's diets between 4 and 18 months, commenced in 2011, and the results should be published in 2012.

SACN has brought together data from the National Diet and Nutrition Survey and the Low Income Diet and Nutrition Survey to describe diets of children aged 1½ and over. This

shows that children typically have diets high in energy dense foods, saturated fat and non-milk extrinsic sugars, but low in fibre, fruits and vegetables.<sup>107</sup> Making specific observations and judgements about the diets of children under 5 is difficult since for this group guidelines vary and are not clear.

Some data about children's diets are available in the third Millennium Cohort Survey. This study found that parents of obese children were about twice as likely to report that their child did not eat breakfast daily compared to the children who registered as having a normal weight. Reported habits in eating breakfast were, in turn, strongly related to parents' work status, with workless households far less likely to report that the child ate breakfast (7.2 per cent of 5-year-olds in the MCS did not eat breakfast).<sup>108</sup> The question in the MCS on whether the child ate regular meals was not found to be related to children's weight status.<sup>109</sup>

As the SACN has observed, there is currently a lack of national data to describe the dietary intake and nutritional status of children aged younger than 18 months.<sup>110</sup>

## Vitamin and mineral deficiencies among young children in the UK

### Iron deficiencies

Babies absorb iron in the womb, particularly during the final three months of pregnancy and there is evidence that premature babies may be at greater risk of iron deficiency.<sup>113</sup> Children's diets in their early childhood are also considered to be crucial. In particular, it is a lack of meat and oily fish, and prevalence of cow's milk as a main drink for young children, that is believed to cause iron deficiencies among UK children.<sup>114</sup> Iron deficiency is the UK's most common nutritional disorder in early childhood and, as mentioned in chapter 1, it has an important role on the development of the infant brain.<sup>115</sup>

Data on the general UK population from the National Diet and Nutrition Survey, collected in 1992/93, demonstrate that according to one measure (concentrations of serum ferritin), 33.5 per cent of boys aged 1½ to 4½ and 25.1 per cent of girls of this

age group had depleted levels of iron. Within the same age group, 8.1 per cent of boys and 9.1 per cent of girls were identified as having levels of haemoglobin that were low enough to indicate anaemia.<sup>116</sup>

Risk factors for iron deficiency include gender (girls are more likely to be at risk), children from poorer or less educated families, and children from some minority ethnic groups in the UK,<sup>117</sup> although findings on ethnicity as a risk factor have varied between studies.<sup>118</sup> Again these nutritional inequalities in early childhood are likely to reinforce other risk factors for poor early development, thereby adversely contributing to socio-economic inequalities in British society.

### Vitamin D deficiency and rickets

Another serious vitamin deficiency prevalent in UK children is vitamin D deficiency. Although rickets (one variety of vitamin D deficiency disease) was effectively abolished in the post-war years, identified cases of rickets have leapt in recent years. For example, one study found that the rate of vitamin D deficiency diseases identified at a Glasgow hospital doubled during the study period (between 2002 and 2008), with an average 23 cases identified early on, increasing to 42 cases in 2008.<sup>119</sup>

However, as there is no screening process for vitamin D deficiency in infants, it is likely that many children remain undiagnosed. The highly publicised case of 4-month-old Jayden Wray, whose rickets was undiagnosed and eventually contributed to his death, is a particularly severe example of the potential dangers of this condition.<sup>120</sup>

A nationwide UK survey showed that more than 50 per cent of the *adult* population have insufficient levels of vitamin D and that 16 per cent have severe deficiency during winter and spring.<sup>121</sup> Black and minority ethnic populations are especially at risk and thus in some boroughs rates are far higher. The BBC reports that a quarter of toddlers are affected by vitamin D deficiencies.<sup>122</sup>

The latest data from the National Diet and Nutrition Survey shows that on average toddlers are receiving only 26 per

cent of the vitamin D they need through their food.<sup>123</sup> Even once vitamin supplementation was factored in, this survey found that ‘vitamin D-containing supplements increased mean intakes by 24–33 per cent for children aged 1.5 to three years and children aged 4 to 10... [therefore] intakes were still well below the RNI’.<sup>124</sup> This suggests that there is a pressing need to improve strategies for tackling vitamin D deficiency in young children. The Government currently recommends that all children aged between 6 months and 5 years should receive vitamin D supplements. It also recommends that if it is likely the mother had low levels of vitamin D during pregnancy (for example, if she did not take a vitamin D supplement while pregnant) her baby should be given a supplement from one month after birth.<sup>125</sup>

### Vitamin A deficiency

The body uses vitamin A ‘for regulation and promotion of growth and differentiation of many cells, including cells in the retina of the eye and the cells that line the lung’.<sup>126</sup> Vitamin A can be gained through whole cow’s milk, orange, red and dark green fruit and vegetables, and oily fish.<sup>127</sup> Vitamin A is also one of the supplements recommended to children aged 6 months to 5 years and is provided to those taking up the Healthy Start scheme.

There are various reports on the vitamin A status of infants and young children. Data from 1995 suggest that around 40 per cent of toddlers in the UK had insufficient vitamin A in their diets, according to (slightly outdated) data from the 1992/93 survey of those aged between 11–12 years and 41–42 years.<sup>128</sup> However, more recent, though only interim, National Diet and Nutrition Survey data suggest that now vitamin A levels are mostly being met through children’s diet. These interim results show that children aged 18 months to 3 years have an average intake of vitamin A that is higher than the recommended nutrient intake (RNI) for this age group. Their average vitamin C intake is more than double the RNI.<sup>129</sup> Therefore, the Feeding for Life Foundation has argued that ‘the need for vitamin A and C supplementation is now questionable’.<sup>130</sup>



### Uptake of vitamin supplements

There are no national data on the use of vitamin D supplements during pregnancy, but some evidence suggests that usage is very low and is a predictor of vitamin D status.<sup>131</sup> In the 2005 NHS Infant Feeding Survey, only 3 per cent of babies were given vitamin supplements when aged 4–10 weeks, and this only rose gradually to 7 per cent by the age of 8–10 months. Babies were more likely to be receiving vitamin supplements if their birth weight was low, or if they had been in special care after the birth. SACN reports that of children aged 1½ to 4½ years, only one in five have received non-prescribed vitamin supplements.<sup>132</sup>

### Rates of dental decay

At the time of the last national study of children's dental health in 2003, 43 per cent of 5-year-olds had evidence of decay in their milk teeth, while 12 per cent of 5-year-olds had a filling in at least one of their milk teeth.<sup>133</sup> A more recent study found that in 2007/08 children aged under 5 in England had an average of 1.11 teeth that were decayed, missing or filled.<sup>134</sup> Although tooth decay among 12–14-year-olds has fallen over the past two decades, it has not improved among 5-year-olds since the late 1980s.<sup>135</sup>

Rates of tooth decay also vary around the UK, with the 2003 national survey of 5-year-olds identifying 'a seven-fold difference between PCTs with the best dental health and those with the worst'.<sup>136</sup> A 2005 report citing data from 1999/2000 stated that pre-school children in Scotland have among the highest rates of decayed teeth in Europe. At this time the mean number of decayed, missing or filled teeth for a 5-year-old child in Scotland was 2.7 compared with 1.6 for the whole of the UK. According to this study, 55 per cent of Scottish 5-year-olds have decayed teeth, and less than 10 per cent of these cavities are restored.<sup>137</sup>

One of the factors that increases the risk of dental decay and caries in young children is frequent consumption of sugary drinks and foods.<sup>138</sup> Another important factor is *how* children eat or drink; for example, if they drink milk or juice from bottles or non-spill beakers,<sup>139</sup> or eat and drink before bed, as levels of

saliva (a natural defence against tooth decay) are lower during the night.<sup>140</sup> Intake of fluoride (usually by drinking fluoridated tap water) is also important,<sup>141</sup> as is frequent tooth brushing with fluoride toothpaste.<sup>142</sup>

## Food allergies

A recent clinical guideline published by NICE explains that ‘Food allergy is an adverse immune response to a food.’<sup>143</sup> As such, it can be distinguished from food intolerance, ‘which is a non immunological reaction that can be caused by enzyme deficiencies, pharmacological agents and naturally occurring substances.’<sup>144</sup> Food allergy is considered to be a serious health problem for young children, because of the significant health risk posed by allergic reactions.<sup>145</sup> There has been a notable increase in the prevalence of food allergies in the last few decades, with rates of food allergies among children aged under 3 estimated to vary between 6 per cent and 8 per cent in Europe and the USA.<sup>146</sup>

A 2003 study by the Royal College of Physicians observed that ‘Potentially life-threatening but previously rare allergies, such as peanut allergy which now affects one in 70 children, are increasing.’<sup>147</sup> Two recent studies have estimated that approximately 1.8 per cent of children aged 5 and over have an allergy to peanuts.<sup>148</sup> A recent cohort study conducted in the Isle of Wight found that rates of peanut allergy changed over time: ‘Peanut sensitization and reported allergy in children born in 1994–1996 increased from 1989 but seems to have stabilized or slightly decreased since the late 1990s [although the reduction was not statistically significant]’.<sup>149</sup>

The causes of food allergies are still poorly understood, although known risk factors include a parent or sibling having asthma, food allergies, eczema or dermatitis, with maternal eczema being the strongest risk factor.<sup>150</sup> A recent study in the USA also found that children who live in urban centres had a greater risk of food allergy than children in rural areas (9.8 per cent of children in urban areas had allergies, compared with 6.2 per cent in rural areas).<sup>151</sup>

Contrary to previous government guidance,<sup>152</sup> there is currently no evidence to suggest that the introduction of potentially allergenic foods such as peanuts should be delayed later than other weaning foods.<sup>153</sup> In fact, as the British Dietetic Association has observed, there is some evidence that ‘such a delay could adversely affect the development of food allergies’.<sup>154</sup> King’s College London’s Enquiring About Tolerancy (EAT) study has been set up to explore whether introducing allergenic foods into babies’ diets at three months alongside breastfeeding is associated with a lower risk of the child developing food allergies than exclusive breastfeeding.<sup>155</sup> This study will report in 2015.

### Nutrition in low income families

The increasing numbers of people in the UK seeking support from food banks has generated a great deal of news coverage in recent months. Figures released by the Trussell Trust in October 2012 demonstrated that this charity provided emergency food packages to 110,000 people between April and October 2012, and expected to provide food to a total of 200,000 people by the end of 2012. Save the Children recently conducted a survey of parents (between May and June 2012) to find out how the recession was affecting parents’ ability to provide for their children. The survey received more than 5,000 responses from parents, who were asked to give their household income. Family incomes were then categorised into three income groups corresponding roughly to ‘low income’ (£0–16,999), ‘modest incomes’ (£17,000–29,999) and ‘more affluent households’ (£30,000+).<sup>156</sup> It found that ‘Large numbers of families from across different income groups say they’ve cut back spending on food in the past year with low-income families in particular saying they’ve bought less fruit and vegetables.’ The key findings from the survey are presented in box 1.

Box 1

**Key findings from Save the Children survey (May–June 2012)**<sup>157</sup>

*Cut back on how much is spent on food:*

- 60.8% of parents with a household income of £0–16,999 a year
- 63.6% of parents with a household income of £17,000–29,999 a year
- 54.5% of parents with a household income of £30,000 or more a year

*Bought less fruit and veg or fresh food because it's too expensive:*

- 39.1% of parents with a household income of £0–16,999 a year
- 29.5% of parents with a household income of £17,000–29,999 a year
- 15.3% of parents with a household income of £30,000 or more a year

*Made portions smaller to stretch food further:*

- 25.5% of parents with a household income of £0–16,999 a year
- 24.7% of parents with a household income of £17,000–29,999 a year
- 13.6% of parents with a household income of £30,000 or more a year

*Going without at least one hot meal a day (excluding school meals)*

- 12.7% of parents with a household income of £0–16,999 a year
- 5.3% of parents with a household income of £17,000–29,999 a year
- 1.6% of parents with a household income of £30,000 or more a year

These findings highlight the particularly severe challenges that parents with low incomes face in seeking to meet their young children's nutritional needs, putting children from low-income families at greater risk of malnutrition and other associated poor outcomes.

### Impacts of poor nutrition on cognitive and behavioural development and school attainment

As we have seen in chapter 1, not being breastfed and iron deficiency have potentially negative effects on children's cognitive and behavioural development. Early development is important because children's physical, social, emotional and cognitive development during the early years strongly influences their school-readiness and educational attainment, economic participation and health.

Indeed, the Marmot review points out that children with a high cognitive score at 22 months but with parents of low socioeconomic status do less well (in their subsequent cognitive development) than children with low initial scores but with parents of high socioeconomic status. Children of educated or wealthy parents can score poorly in early tests but still catch up, whereas children of worse-off parents are extremely unlikely to do so. There is no evidence that entry into schooling reverses this pattern.<sup>158</sup> Ensuring that poor childhood nutrition is not a hindrance to children's cognitive development could be a small but important contributor to improving school attainment and later life outcomes.

As mentioned previously, breastfeeding appears to be beneficial to children's brain development, although the exact mechanisms are uncertain. Children under 2 years of age with iron deficiency anaemia often show problems of language, motor coordination, attention and mood. There is also a suggestion that this is more apparent in children aged 2–5. Although improvements in attention and cognition from iron supplementation have been reported, the evidence is still limited.<sup>159</sup> Anaemia in toddlers is often associated with developmental delay. For example an inner-city English sample of 18-month-old

children responded to iron supplementation with an increased weight gain and rate of development.<sup>160</sup> Evidence on this issue is limited, but since iron deficiency has various negative impacts, it is clearly important to reduce it via the encouragement of an iron-rich maternal diet and weaning foods, and discouragement of excess cows' milk as previously mentioned.

More generally, a poor and sporadic diet – for example a diet high in sugar and fat, and a diet not including breakfast – can impact on development too. Data on breakfast consumption rates for very young children are sparse, but we know that breakfast is a commonly missed meal for older children. For example, a survey of 10,000 parents across the UK for the Local Authority Caterers Association found that 3.9 per cent of primary school children (aged 4–11) are missing out on breakfast.<sup>161</sup> A survey of Year 6 children (aged 10 or 11 years) also reported that 5 per cent ate no breakfast that day, 3 per cent had just a drink, and a further 9–13 per cent ate crisps or chocolates for breakfast. More worrying still, 21 per cent of Year 10 girls (aged 15 or 16 years) reported eating no breakfast, a further 19 per cent had just a drink and 15 per cent ate no lunch the day before.<sup>162</sup> Another study found that 7.2 per cent of 5-year-olds in the Millennium Cohort Study did not eat breakfast every day.<sup>163</sup>

There is also strong theory (although confirmatory evidence is mixed) that a diet high in simple carbohydrates (which release sugar quickly) can lead to mood swings, with immediate energy bursts followed by later slumps, and inattention in the classroom.<sup>164</sup> Food high in simple carbohydrates may also mean children take in less nutrients that are beneficial to their brain and hinder their development, which then impacts on their school attainment. Feinstein et al analysed children's diets at age 3, 4 and 7. They found that a 'junk food' dietary pattern at age 3 had a negative association with the level of school attainment. A weak association remained even after controlling for the impact of other dietary patterns at age 3, dietary patterns at ages 4 and 7, and a wide range of other confounding factors, including but not limited to breastfeeding, mother's education and socio-economic status, whether the mother smoked in pregnancy, and the amount of cognitive

engagement present in the home. There was no evidence that packed lunches or school meals were related to children's attainment, once consumption of junk food at age 3 had been controlled for.<sup>165</sup>

Particular nutrients and foodstuffs, including omega-3 and artificial additives, appear to be especially important for helping or hindering cognitive development. For example, when they analysed data from the Avon Longitudinal Study, Hibbeln et al found that mothers who consumed 340 grams of fish, which is high in fatty acids omega-3, were less likely to have children in the lowest quartile for IQ than those who had less fish, even when controlling for various confounders. Omega-3 consumption was associated with lower risk of suboptimum verbal IQ in a non-linear dose-response curve.<sup>166</sup> As well as impacting on children in gestation, analysis of a US survey of 4,000 schoolchildren aged 6–16 has suggested that a diet high in omega-3 fatty acids in childhood is also a benefit to children's cognitive functioning.<sup>167</sup> This was especially important for girls.

We know that consumption of oily fish and omega-3 fats is very low in pregnant and breastfeeding mothers, and in young children, especially in certain groups. In the National Diet and Nutrition Survey, all age groups consumed well below the recommendation for consumption of oily fish (at least one portion each week) and in the Low Income Diet and Nutrition Survey, only 3 per cent of children had eaten oily fish and foods that contained oily fish.<sup>168</sup> There is therefore a variety of evidence suggesting that most children could benefit from improvements in their diet to ensure they receive adequate levels of the nutrients needed to support their health and development.





## SECTION 2

# THE ROLE OF PARENTS AS FIRST FEEDERS

Section 2 draws on the primary research undertaken for this report, including four in-depth research workshops with a total of 25 parents and an online survey of 1,824 mothers:

- Chapter 4 will explore the various influences that affect how parents make decisions about feeding their young children.
- Chapter 5 will identify areas where parents have good knowledge of the nutritional needs of young children, and where they have gaps in knowledge.
- Chapter 6 will explore various challenges that can affect parents' ability to provide their children with good nutrition in the early years.



## 4 How parents make decisions about feeding their young children

This chapter will explore the various influences that affect how parents make decisions about feeding their young children, using evidence from the Bounty Word of Mum survey and research workshops on the various factors that influence parents' feeding decisions at each stage of early childhood: infancy, weaning and the toddler years.

### The first place that mothers go for advice about feeding their baby or toddler

In the Bounty Word of Mum survey we asked parents: 'Which of the following would be the first place you would go to for advice about feeding your youngest baby/toddler?' Their answers to this question are presented below in figure 2. This demonstrates that 'friends and family' was the most popular of the options presented, with 33 per cent of mothers selecting this as their first port of call. Figure 3 shows the breakdown of this figure. 'A health professional' was the second most influential category (28 per cent) and the internet was the third most popular source of information (26 per cent). As figure 4 demonstrates, government websites and the websites of baby food brands were equally popular, with 4 per cent of mothers choosing each of these options. Parenting clubs, chosen by 16 per cent of mothers, were four times more popular than either government or baby food brand websites as a source of information and advice on feeding.

Beneath these top-line figures, we can also see in figure 5 that mothers of different age groups made slightly different choices about their first stop for information. In the 16–24 age group, word of mouth was by far the most powerful, with 50 per cent of mothers going to friends and family first for advice on feeding. This reduced to 34 per cent in the 25–34 age group and

Figure 2 **The first place mothers would go for information on feeding their baby or toddler**

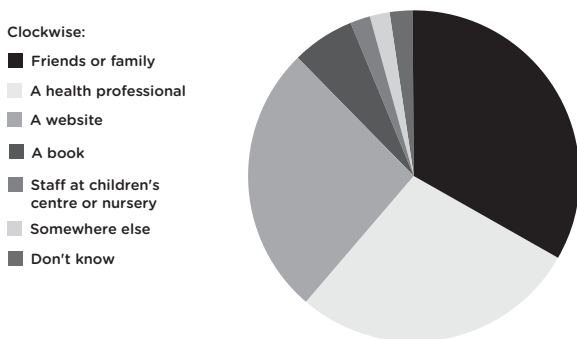
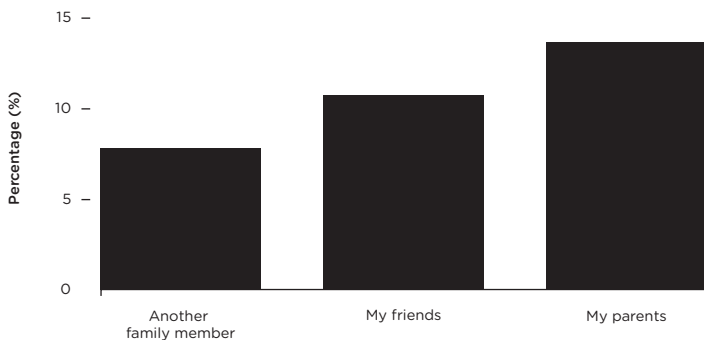
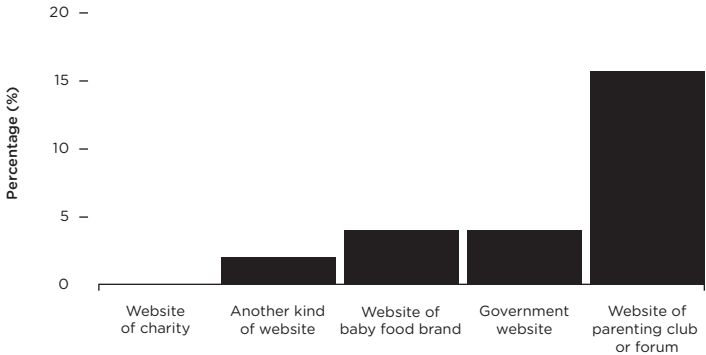


Figure 3 Breakdown of family and friends mothers who would go to first for information on feeding their baby or toddler (percentage of total sample)



26 per cent in the 35-44 age group. The advice of health professionals was more popular with mothers in the older age categories (29 per cent of mothers aged 25-34 or 35-44 made this their first choice, compared with only 23 per cent of mothers in the younger age category) and parenting clubs and forums were also more popular among mothers in the older age groups.

Figure 4 **Websites mothers would choose as first stop for information on feeding their baby or toddler (percentage of total survey sample)**



## Influences on mothers' decisions on how to feed their baby

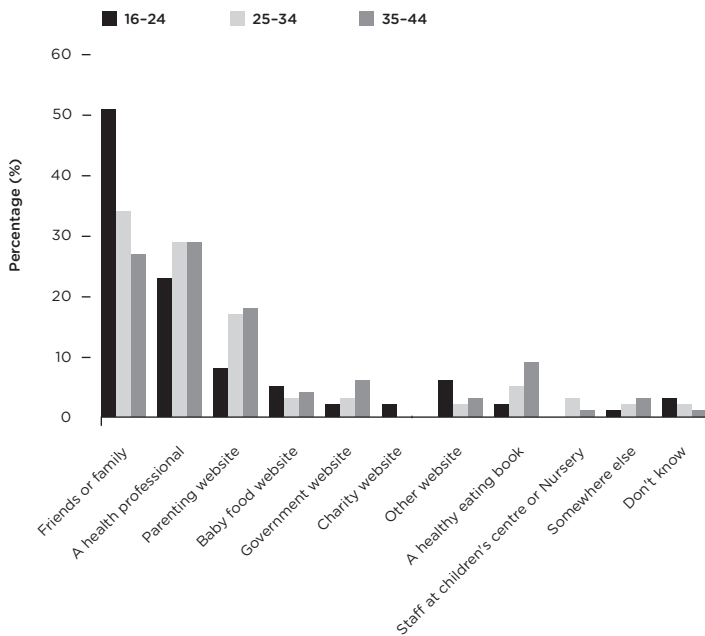
In the four research workshops, the influences on whether mothers decided to breastfeed or formula feed were mainly limited to friends, family and healthcare professionals, although several mothers mentioned having drawn on online resources or peer support groups for advice and support with breastfeeding.

### Information and advice from friends and family

In the first workshop, which took place in Romford, one mother commented, 'I didn't really get a lot of information, but my mum was there to support me so she just helped me with everything.' Another mother agreed: 'I also had friends who had babies who were 6 months or a year older, and my family. My mum is such a good source of information.' Several mothers also referred to the 'internet' and 'Netmums' as supplementary sources of support they had drawn on. Some mothers in this group had breastfed and others had formula fed their babies.

In the third workshop, which took place in Gateshead, all six mothers had initially had the intention to breastfeed their

Figure 5 Mothers' first stop for advice by age group<sup>169</sup>



babies, although one mother had found that she was unable to following the birth of her baby. Some members of this group explained that family members and health services had both played a strong role in shaping their intentions to breastfeed:

*I breastfed both of mine. My mother put a lot of pressure on me because my mother's from a line of women where the entire family breastfeeds. So I think I knew beforehand I would be breastfeeding.*

*I was encouraged to breastfeed by... friends, family. I went to a breastfeeding workshop [provided by the NHS]. Even the adverts for formula say 'breast is best', so you don't get away from it.*

Two mothers also specifically discussed the importance of friendship circles in influencing mothers' choices about feeding their babies. One mother in this group explained:

*I've got a friend who's 21 and she's having her second baby now. Her peers all bottle feed so she gets the pressure to bottle feed rather than breastfeed. She wants to breastfeed but she feels like she doesn't get enough support.*

Another mother explained that her choice to feed her baby with a combination of breast milk and formula milk was on the advice of her friends, who told her that mixed feeding would give her greater flexibility:

*Sometimes health visitors can put a lot of pressure on you. Sometimes you've just got to go with your own instincts. I breastfed but from quite early on I gave him a bottle at night time. Sometimes I expressed and sometimes I gave him formula. So I knew he would take a bottle and would take formula and he'd be able to take it if I was going out or if his dad wanted to feed him and I can leave him in the daytime.*

The fourth research workshop was held in Wigan with young parents all aged between 17 and 20. Most of the mothers in this research workshop had been clear about their intention not to breastfeed from early in their pregnancy, and their comments reflected a combination of personal preferences and peer influences:

*I just decided it myself [to formula feed].*

*I thought he's ruined me at the bottom, I'm not going to let him ruin me up top as well.*

*People just told me you get saggy boobs from them!*

*I thought that when I have my second baby I was going to try breastfeeding, but no, not with my first.*

When questioned, the young mothers were aware of the message that 'breast is best', but they were mostly somewhat hazy on the subject of why breastfeeding is recommended to be the best option for babies:

*Is it because of the nutrition that is in your body?*

*I can't remember [why breastfeeding is recommended].*

*They probably told me in hospital but there was so much gas and air that I can't remember! I was high, I think!*

With little understanding of the benefits of breastfeeding for babies, in the fourth workshop most of the mothers' decision-making appeared to have centred on the (perceived) disadvantages of breastfeeding for the mother. The information that they based their early feeding decisions on was mainly derived from their family members and peer circle, and reflected a strong local culture of formula feeding.

### Learning from others' experiences

Of the five mothers who took part in the second focus group, all had ultimately formula fed their babies. This appeared to reflect a relatively strong local culture of bottle feeding, as all of the mothers in this workshop mentioned the fact that breastfeeding was unusual, or unknown within their social circles.

Some mothers also learnt from the experiences of their social circles or relatives. For example, one mother explained that she formula fed her baby because she had witnessed the difficulties her sister had with breastfeeding:

*I bottle fed purely because my sister has a 6-year-old and she breastfed but she found it really difficult at the time, within society and stuff like that... and she was really restricted on where she could go and [at times] she felt like she didn't have a life. So that put me off. As soon as I found out that I was pregnant, it was my choice to bottle feed from the start.*



Another was influenced by her boyfriend's sister:

*I remember my boyfriend's sister has just had a little baby and she's not doing that well and they've had to swap her onto bottles and now she's dead good, she sleeps through and everything. And they're saying at the hospital that when she was breastfeeding, maybe she wasn't getting enough milk. It puts me off it because you don't know how much she's getting if you're breastfeeding. You don't know if your baby is getting enough. With formula you know.*

While other mothers referred to their social circle:

*I did [decide on feeding before the baby was born]. I didn't want to breastfeed so I knew I wasn't going to... I just thought it was better, bottle feeding, because some of them who I know have breastfed and then gone straight to bottles so I don't see the point. And it takes them longer to detach from you than [from] bottles.*

One mother explained that the experience of watching another woman breastfeed at the hospital had ultimately influenced her decision not to breastfeed:

*No, I decided bottle feeding, but when I went the hospital I was thinking about breastfeeding, but then I saw someone else [breastfeeding] on the other side of the thing and I thought 'no I'm staying on bottle!' It took them half an hour to get them off the boob! She needed help to get him off. But what's she going to do at home? If I did that I'd be struggling at home, wouldn't I!*

### Professional advice and support

The role of professional advice and support was far less prominent than family and friends' advice and first-hand observations. As one mother explained, 'The midwife gave me a bit of information but I've got a large family so it was mainly from them.'

However, some mothers did report accessing NHS and National Childbirth Trust (NCT) workshops, and were positive about their experiences. However, those who accessed these services tended to be those already intent on breastfeeding

and seeking help on doing so. One mother who had attended without a clear intention to breastfeed felt pressurised by the workshop:

*I felt like a bad person at that class because I had already decided I was bottle feeding and because they were so pushy on the breastfeeding, I just sat there all shy and quiet... I felt like I couldn't talk about it because I'd be saying wrong, because that was the impression they were giving.*

She suggested that the process could have been made more inclusive if the sessions had recognised that breastfeeding was not the only option. She said:

*I think you should be invited to a workshop on 'bottle feeding or breastfeeding' and you could go to both. And then people might think 'I'd like to try breastfeeding'.*

Her comments suggested that services that explicitly make mothers feel under pressure to breastfeed may be counter-productive. A more nuanced approach that communicates the benefits of breastfeeding for mothers and babies, while recognising the mother's ultimate autonomy to make her own choice, may be more effective.

### The information gap

Some of the older mothers in the workshops reported a lack of professional advice on breastfeeding, and a subsequent reliance on the prevailing culture of formula feeding within her 'family circle'. However, more frequently, workshop participants reported a lack of advice on formula feeding. One mother said she had simply followed the instructions on the formula packet. Two mothers said that they picked the type of formula they were fed on as a baby and chose the milk that said 'from newborn' on the packet. When they were asked if they had all of the information they needed on formula feeding, one mother said, 'You just pick it up as you go along', and another, 'I got it from a

book.’ Three others, including a young father, said they had ‘got it from my mum’.

We will look in more detail at the role of (formal and informal) support services in enabling mothers to initiate and persist with breastfeeding in chapter 8 of this report.

## Influences on mothers’ decisions about weaning

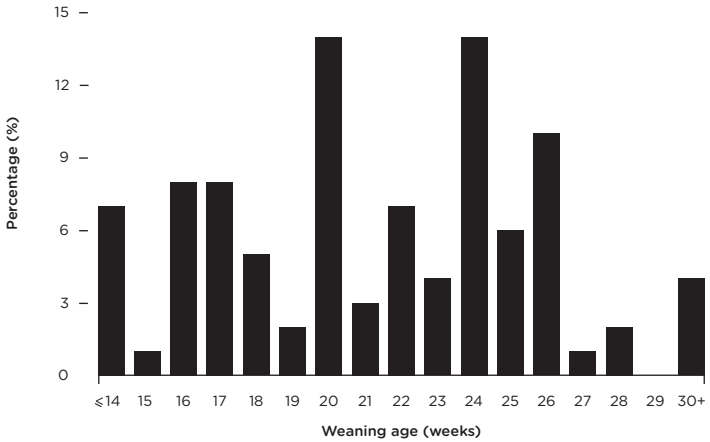
### Deciding when to wean

Mothers participating in the Bounty Word of Mum survey in 2012 were asked at what age they weaned their youngest child (see figures 6–8). The question did not apply to participating mothers whose babies had not yet had solid food and 1,047 mothers answered it. Their responses show that just 17 per cent of the mothers surveyed waited until their baby was six months before they first introduced solid food. The Department of Health’s official guideline currently stipulates that babies should not be given solid food until they are ‘about six months’, apparently allowing for a little flexibility.<sup>170</sup> Therefore, parents who weaned at 24 or 25 weeks may also have considered themselves to be roughly adhering to this guideline, in which case up to 37 per cent of parents may have followed government guidelines.

If we break down these responses by the mother’s age group and their social grade, we can see that mothers aged 35 or over were more likely to postpone the introduction of solid food to 26 weeks (see figure 7), as were mothers in the higher social grades A and B (see figure 8). For an explanation of the social grading classification used in the Bounty Word of Mum survey, please see appendix C.

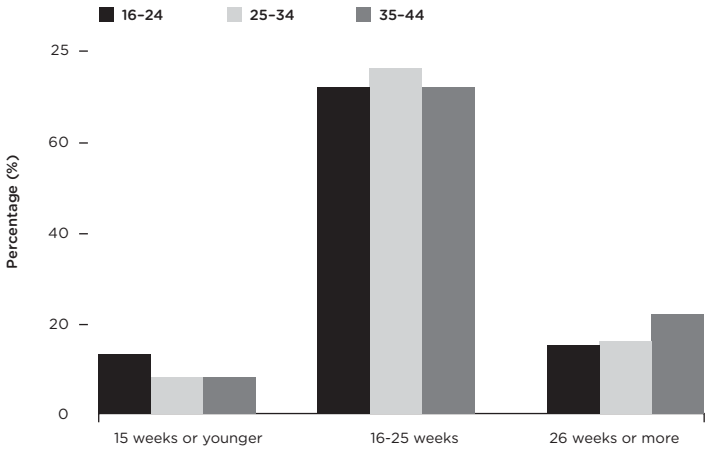
We also asked the parents who participated in the research workshops how old their child had been when they first introduced them to solid food. If the parent had more than one child, we asked them to tell us about their youngest child. The parents’ answers are presented in table 3, which shows that approximately 20–25 per cent of parents adhered to the official government guideline of weaning at ‘about six months’. A lower proportion of parents who took part in the workshops weaned at

Figure 6 Weaning age of youngest child



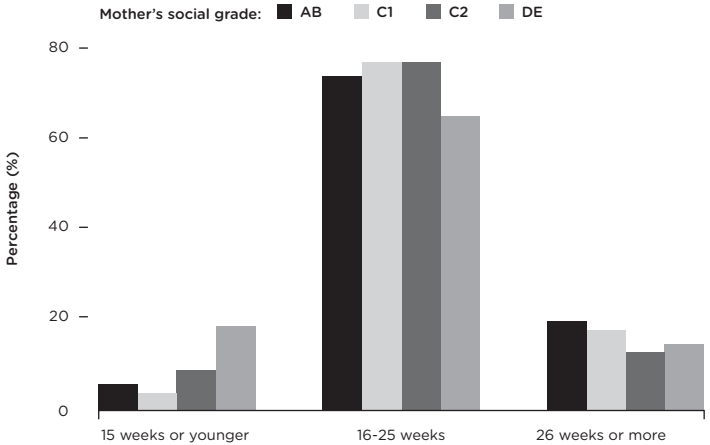
Source: Bounty Word of Mum survey 2012

Figure 7 Weaning age of youngest child in weeks, according to mother's age (%)<sup>170</sup>



Source: Bounty Word of Mum survey 2012

Figure 8 **Weaning age in weeks according to mother's social grade (%)<sup>172</sup>**



Source: Bounty Word of Mum survey 2012

Table 3 **Actual weaning age of participating parents' youngest child**

Research workshop 1 (Romford)	Research workshop 2 (Knowsley)	Research workshop 3 (Gateshead)	Research workshop 4 (Wigan)
1 3-4 months	1 Can't remember	1 25 weeks, just before 6 months old	1 5 months
2 5 months	2 4-5 months	2 10 weeks (following a paediatrician's advice)	2 3.5 months
3 16 weeks	3 4 months	3 22-23 weeks	3 4 months
4 5 months	4 6 months	4 5 months	4 2 months
5 5-6 months	5 4 months	5 5 months	5 3.5 months
6 6 months		6 6 months	6 3.5 months
7 6 months			
8 No answer			

Figure 9 **How mothers decided it was time to start weaning**



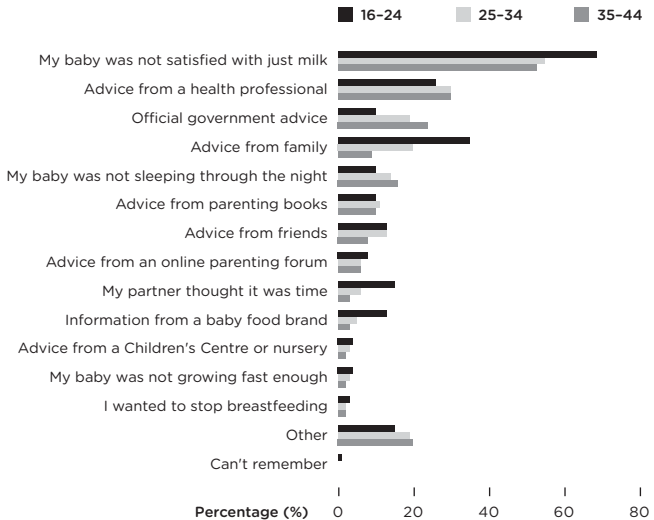
Source: Bounty Word of Mum survey 2012

‘about six months’ than those who participated in the survey, perhaps because the research workshops included a particularly high proportion of younger parents (11 of the 25 parents who took part were aged 25 or younger).<sup>173</sup>

In the Bounty Word of Mum survey, we also asked mothers how they had decided that it was time to start introducing solid food into their baby’s diet. The top answer was ‘my baby was not satisfied with just milk’ (55 per cent) (figure 9). Advice from a health professional came second (30 per cent), while 18 per cent of mothers cited advice from family and 11 per cent cited the advice of friends as a key influence.

Approximately 20 per cent of the mothers surveyed gave ‘official government advice’ as one of the reasons for their decision. However, as we can see from figure 10, in the 16–24 age group, only 10 per cent of mothers said they were influenced by government guidance, in comparison with 24 per cent of mothers in the 35–44 age group.

Figure 10 **How mothers decided to start weaning, (% of mothers in each age group who selected this answer)**



Source: Bounty Word of Mum survey 2012

Advice from health professionals was also slightly more influential for older mothers (30 per cent of mothers in the two older age groups cited the advice of health professionals, compared with 26 per cent of mothers aged 16–24). Informal advice from family members was substantially more important to younger mothers (35 per cent of mothers aged 16–24 cited this), while the opinion of a partner also has more influence for mothers aged 16–24 (15 per cent). It is notable that information from baby food brands (including food packaging and websites) was considerably more influential for younger mothers, with 13 per cent of mothers aged 16–24 citing this influence, compared with only 3 per cent of mothers aged between 35 and 44.

When we asked parents participating in the research workshops how they decided when to wean their babies, they

gave a variety of answers reflecting the range in the survey, including advice from healthcare professionals; advice from friends and family members; information on baby food packaging; the desire to stop breastfeeding; and responding to their perception that their baby needed more nourishment. We will now briefly explore each of these areas in turn.

### *Advice from health professionals*

Some of the mothers who participated in the focus groups sought information and support from their health visitor on the appropriate time to begin introducing solid food into their baby's diet. Some had sought advice from their mothers first, then checked with health visitors if they had outstanding concerns.

In the second workshop, a mother explained that as she was very anxious about introducing solid food, she had followed her health visitor's advice to the letter:

*I couldn't feed her solids before six months because that was the guidelines... I used to Google it, and I'd look at all of the jars and some of them would be from 4 months and I thought 'there's too many bits in that, I'll have to wait two months'. So [she] was literally 6 months to the day.*

In the third workshop, a mother explained that she had weaned her baby early on the advice of a paediatrician, because of the problems with feeding that her son was having:

*My son was referred to a paediatrician, so I was told to wean him on baby rice at 10 weeks old. That was another method for him to get the milk because he was losing out on the bottle. He couldn't do the sucking and swallowing coordination, so what he was taking in was just coming back out. So they said one method was to try and spoonfeed him and give him the baby rice as well. So he was 10 weeks.*

In the fourth workshop, which included six young parents aged between 17 and 20, there was some discussion among the mothers about the various recommendations their health visitors had given them about appropriate weaning ages, with conflicting



messages from 4 to 6 months. This group could also not explain why they needed to wait until that time.

As we have seen in table 3, most of the parents who took part in the fourth workshop did not adhere to the advice given by their health visitors.

### *Advice from friends and family on weaning*

Word-of-mouth advice from friends and family (and particularly the mothers' own mothers) was another important source of information on introducing solid foods for parents taking part in the research workshops. The prevailing opinion 'that's what my mum did and it didn't do me any harm' was used to explain a variety of weaning practices that departed from the current guideline to wean at 6 months. Older sisters and friends were also identified as a source of weaning guidance (on when and what to feed).

However, one mother explained that she had purposefully distanced herself from the influence of family at this time, as she did not believe that their knowledge would be up to date:

*I didn't ask my mum for advice because her youngest child is nearly 21 and her oldest child is 40, so I thought 'did they even have baby powder then?' So I didn't ask my mum for advice.*

### *Infant food packaging*

Baby food packaging was also frequently mentioned by parents as playing an important role in decisions around the timing of weaning: 'I used to literally just go by the jars, so if it said 6 months or 9 months or 12 months.'

A father in the first workshop discussed his confusion at the contradictory messages that he felt he had received from health professionals and baby food packaging:

*You see people say you should only wean your baby from 6 months, but if you actually look at the jars that you get, actual baby jar food, some of them have different labels and some quite clearly state 4-6 months. So what I don't get is that they [health visitors] say 6 months plus, but if that was the*

*case then they should start making the jars of food from 6 months plus, not 4 months onwards. So basically there's a bit of a contradiction between the two – what do you believe: what people are telling you or the stuff that's being sold?*

This comment suggests a high degree of trust in infant food manufacturers, which causes confusion when health visitors' advice contradicts the advice on food packaging. This apparently caused this father to treat the professional advice he received with a degree of scepticism. This high level of trust was seen in other groups, where parents assumed that if a jar said 'suitable from four months' it could be appropriate to use this as a first weaning food, even if it contained lumps (for example lasagne or chicken dinner). Some of the parents in the fourth workshop demonstrated a low awareness of the principle that babies should first be weaned on smooth foods, before gradually introducing more lumpy foods.

One mother stated that the information available in shops was fairly limited, therefore information on baby food packaging was particularly important:

*Even in the supermarkets there's nothing, there's nothing on the shelves. I'm out of practice as I haven't been down the baby aisle for a while but in the past there wasn't anything there. There was no nutritional information on the supermarket aisles. It was just what it said on the jars.*

#### *Feeling that the baby was hungry*

A number of parents also explained that they had initiated weaning because they thought their baby seemed ready for solid food, because he or she seemed hungry and couldn't be satisfied with milk alone. In some instances, this early introduction of solids had led to mothers reporting being 'in trouble' with their health visitor:

*I made myself wait six months for the oldest because of the pressure but again, I think my youngest, he just wasn't sleeping. I was up every hour to hour and a half breastfeeding and every two hours during the day so I just started him on sweet potato and carrot to pacify him [at 5 1/2 months]. He*

wouldn't sleep through the day either. Again, it was just pressure because you have everybody telling you different things.

### Deciding what foods to give during weaning

In the research workshops, we also asked parents how they had decided which foods to introduce during weaning. Surprisingly, official government advice via documents such as *Birth to Five*<sup>174</sup> or websites such as the one for NHS Choices was not mentioned at any point as featuring in the decisions of the parents who took part in this research.

When we asked parents directly about *Birth to Five*, most knew of the book but few used it – and mainly for problems such as an unexplained rash or difficulties with bathing. None could recall whether it had helped them with weaning.

### Books on weaning

Several of the parents who took part in the four workshops explained that they had bought books on weaning to help them through the process of first introducing solid foods. In particular, books by Annabel Karmel were mentioned a number of times and seemed very popular with parents.<sup>175</sup> In the first workshop a mother commented, 'I got a bit obsessed with Annabel Karmel. I got the book, and the grinder, and everything!' Several mothers in the third workshop also mentioned relying on books by Annabel Karmel. It was the only information one mother had access to. She explained that she had come across the book when Annabel Karmel was interviewed on breakfast television, 'So I just made everything out of that book from day one, it's like my little bible.' Another mother noticed that Annabel Karmel's book had been used as a learning material in a weaning workshop she attended and it was also recommended by her health visitor, 'so I went out and bought the book. I think she's great.'

### Parenting forums and baby food brands

A number of mothers also mentioned online parenting forums, baby brand websites or materials sent to them by baby food brands as sources of information on weaning. Mothers did not

seem to distinguish between ‘reliable’ and ‘unreliable’ sources of information that they found online. Instead, they mentioned whether or not they had found advice or information ‘useful’. In the second workshop, one mother explained that she had found the website Bounty ([www.bounty.com](http://www.bounty.com)) very helpful:

*I did go on the internet sometimes because I was looking for more guidance. I used to just Google. I looked on baby websites and I found Bounty really good. There are lots of links on there for new mums. I still get them now, they send emails.*

Other sources included the websites for Annabel Karmel,<sup>176</sup> HiPP,<sup>177</sup> Morrisons<sup>178</sup> and Kiddicare,<sup>179</sup> and online discussion forums such as Mumsnet.<sup>180</sup> There was no reference to any government websites such as NHS Choices,<sup>181</sup> Start4Life<sup>182</sup> or the Department of Health.<sup>183</sup>

### *Trial and error*

However, not all of the parents in the workshops had sought out information on how to wean their baby. Some of the mothers explained that they had either started out by giving their baby family foods, or had mainly relied on trial and error. In the first workshop, one mother explained that she had introduced her baby to family foods from the very start, after making sure that the consistency was appropriate. Others tried a variety of different jars of food from the supermarket, until finding out what ‘agreed with’ their baby.

### **Deciding what to feed toddlers**

Parents in our workshops did not seem to be particularly aware of toddlers having different nutritional needs from older children, and parents had less to say about how they decided what to feed their toddlers than on the subject of weaning. The main factors that parents mentioned revolved around providing a balanced diet with plenty of variety, giving toddlers normal family foods, and restricting access to unhealthy foods such as crisps or sweets.

### Providing a balanced and varied diet

The main efforts of many of the parents who took part in the research workshops to provide their toddlers with a healthy diet centred around providing a variety of foods and a balance between the main food groups. One mother in the second research workshop referred back to what she had learnt at school, with a limited recollection of protein and carbohydrates, while some mothers mentioned that they try to make sure that their toddlers receive their ‘five a day’ of fruit and vegetables, although they were unsure of what an appropriate portion size for a young child might look like.

### Family foods

Several mothers said that their toddlers would eat whatever the rest of the family was eating, with some ensuring there was plenty of fruit and vegetables. Others admitted their family’s diet might not be healthy enough for their children:

*I feed them the same, probably the same as when I was growing up (but with a bit more knowledge and that), but probably the same because you think that was good for you and as long as it’s meat and two veg... that’s how we were brought up. I think I’m cooking healthily but if it was analysed, who knows?*

*My problem is that I’ll cook, and he’ll eat what me and my partner eat. But I don’t put as much vegetables in there as I should, really. He’ll eat normal food, but I won’t put vegetables in there every single day. Is that bad for my toddler?*

### Restricting access to unhealthy foods

In the third research workshop, mothers particularly discussed attempting to restrict their children’s access to unhealthy foods and making sure that their diet included plenty of fruit. As one mother explained:

*My youngest doesn’t really like desserts and sweets and stuff. My oldest never used to like ice-cream but now he does like some sweets and crisps and*

*then the youngest did too, but it's just small amounts. I'm trying to make sure that they both eat their fruit and vegetables and don't snack too much apart from fruit in between [meals].*

Other than these three main areas (healthy eating, family eating and restricting access to junk foods), parents' discussions on feeding toddlers mainly focused on challenges associated with feeding toddlers, such as fussy eating, or not knowing about appropriate portion sizes for a toddler. Therefore, most discussion of toddler feeding that arose during the research workshops can be found in chapter 6, which looks at the challenges parents face in feeding their children a healthy diet.

### Summary of key findings

The Bounty Word of Mum survey found that mothers are most likely to seek information on early childhood nutrition from a friend or family member (33 per cent) or a health professional (28 per cent). The internet was the next most common source of information (26 per cent), with parenting clubs four times more often used as sources of information than government websites or baby food brand websites (4 per cent each). Informal support was even more important for younger mothers (aged 16–24), while the advice of health professionals was more valued by mothers in older age categories (25–34 and 35–44).

Parents participating in the research workshops explained that support immediately after the birth of the baby and in the following months was very influential in enabling mothers who wished to breastfeed to continue breastfeeding if they experienced problems.

The survey demonstrated that influences on the timing of introducing solid food included perceived hunger cues from the baby (55 per cent), advice from health professionals (30 per cent), official government advice (20 per cent) and advice from family (18 per cent). Only 5 per cent of parents participating in the survey cited information from a baby food brand as an important influence. However, conversations in the research workshops with parents revealed that infant food packaging is

very influential for some parents, and this was particularly the case in the workshop with younger parents. Most parents acted on a variety of types of information and advice including health professionals' advice, conversations with friends and family and information found on the internet or provided by baby food brands. A lot of parents expressed confusion at the plethora of conflicting advice and information on introducing solid food. For some parents this was a source of irritation or anxiety.

Parents had less to say on the subject on influences on toddler nutrition. It seemed that toddler nutrition was given less thought than weaning foods, and once babies and toddlers had graduated to family foods, parents were less likely to seek out advice or information.

The next chapter will look in more detail at parents' knowledge of children's nutritional needs in early childhood, between birth and age 3.





## 5 Parents' knowledge of nutrition in the early years

An important prerequisite of parents being able to meet the nutritional needs of their young children is knowing what these nutritional needs are. Therefore, in the research workshops that Demos held with parents, and the survey of parents conducted by Bounty, Demos posed a series of questions that were designed to test knowledge of babies' and toddlers' nutritional needs.

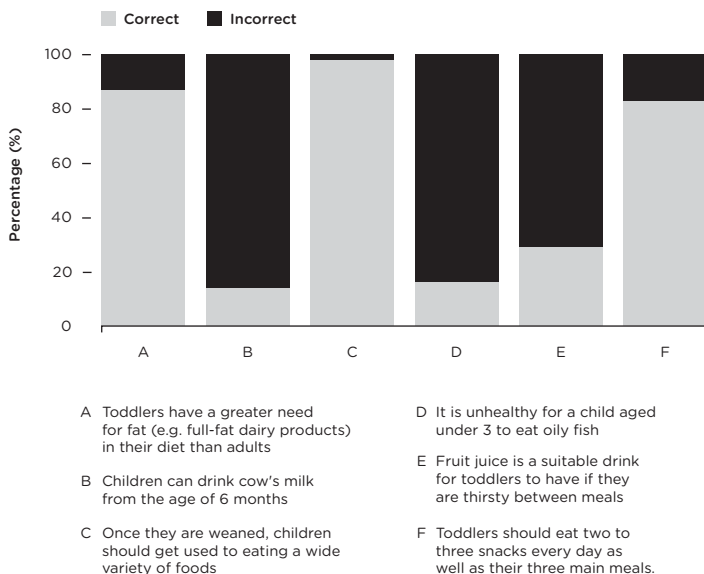
### Nutritional knowledge demonstrated in the parents' survey

We asked mothers of babies and toddlers participating in the Bounty Word of Mum survey a series of questions to test their knowledge of young children's nutritional needs and this received 1,408 responses. We asked six questions in total, in each case asking mothers to decide if a statement was correct or incorrect. Most of the material on which these questions were based was derived from the Department of Health document *Birth to Five*, which is given to all new mothers at the birth of their child. The answers that the mothers gave are presented in figure 11.

In each case, the majority of mothers responding to the survey selected the correct answer. Therefore, these findings suggest that most parents' knowledge of young children's nutritional needs is relatively good (although parents are not necessarily acting on this knowledge). However, a minority of mothers in each case answered the questions incorrectly:

- 13 per cent of mothers surveyed were unaware that toddlers have a greater need for full-fat dairy products in their diet than adults.<sup>184</sup>

Figure 11 **Mothers' responses to questions assessing nutritional knowledge)**



- 14 per cent of mothers incorrectly stated that cow's milk is a suitable drink for children from 6 months (the official recommendation is that children do not have cow's milk as their main drink until they are 1 year old.<sup>185</sup>)
- Only 2 per cent of mothers (incorrectly) disagreed with the statement that children should get used to a variety of foods after they are weaned.<sup>186</sup>
- 16 per cent of mothers incorrectly stated that it is unhealthy for a child aged under 3 to eat oily fish. In fact, the Department of Health recommends that oily fish is a good source of protein and vitamin D for young children, and that boys can eat up to four portions of oily fish each week, while girls can eat up to two portions each week.<sup>187</sup>

- 17 per cent of mothers responding to the survey were unaware that it is recommended that toddlers eat three meals and two or three snacks each day.<sup>188</sup>

Perhaps the most striking finding was that 29 per cent of the mothers surveyed (almost a third) incorrectly stated that fruit juice is a suitable drink for toddlers to have between meals. In fact the official recommendation is that young children shouldn't drink fruit juice except at mealtimes to limit the risk of tooth decay caused by exposure to sugar. It is also recommended that young children do not drink undiluted fruit juice.<sup>189</sup> With sweet drinks such as 'baby juice' increasingly targeted at young children, this lack of knowledge among a third of mothers of the risk of tooth decay posed by sugary drinks is clearly a concern.

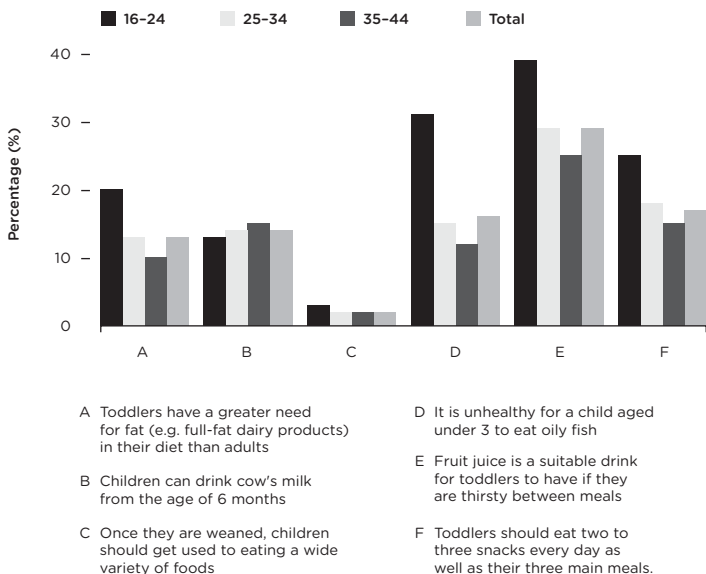
Analysis of the mothers' responses according to their age group also reveals that mothers in the youngest age category (16–24) frequently had the lowest nutritional knowledge (see figure 12). For example, 20 per cent of mothers aged 16–24 were unaware of toddlers' need for full-fat dairy products; 31 per cent were unaware of the nutritional benefits for young children of eating oily fish; and 39 per cent thought that fruit juice was a suitable drink for toddlers to have between meals.

### Knowledge of nutrition among parents participating in research workshops

Each of the four workshops with parents included a short interactive session delivered in partnership with a public health nutritionist to test the participating parents' knowledge and understanding of some basic nutritional principles. These interactive sessions covered ten distinct topics:

- 1 giving vitamin supplements to babies
- 2 introducing cow's milk
- 3 low-fat dairy products
- 4 protein in young children's diet
- 5 adding salt and sugar to young children's food
- 6 identifying sugar content in breakfast cereals

Figure 12 **Proportion of mothers who gave an incorrect answer to questions about nutrition, by age group**



- 7 appropriate drinks for infants
- 8 appropriate drinking containers
- 9 appropriate portion sizes
- 10 managing food refusal during weaning

Topics 1–5 were covered through an exercise in which the parents were invited to decide if a statement was true or false. Each parent had a ‘true’ card and a ‘false’ card that they held up in response to a statement that was read out. The nutritionist then discussed with the parents how they had come to their decision, before giving them the correct answer.

Topics 6–9 were explored through an exercise in which three options were set out on a table (for a food, drink, drinking container or portion size) that might be appropriate for a child of a particular age group. These took the form of an image or an

object. In each case we asked the parents to mark each of the three options presented with coloured stickers to classify them in order of appropriateness for a child of a particular age (red for least appropriate, green for most appropriate and orange for the option that might be appropriate). The nutritionist then discussed with the parents how they had made their choices, and explained the correct answers to them.

Topic 10 took the form of a ‘food refusal case study’, which the nutritionist read out to the parents. The case study described the experiences of a mother who was introducing solid food to her son for the first time. Parents taking part in the workshop were asked to spot the mistakes that the mother in the case study had made.

### Topic 1 Giving vitamin supplements to babies

The first question we posed to parents in the workshops tested their awareness of the government recommendation: ‘Breastfed babies should receive vitamin drops containing vitamins A and D by the age of 6 months.’ In general, we found that the parents’ awareness of this recommendation (that breastfed babies should receive supplements containing vitamins A and D by 6 months) was very low. The vast majority of parents incorrectly believed this statement to be false. As one mother explained:

*At NCT we spent hours talking about breastfeeding and what I got from the NHS workshop and the NCT is that your milk has everything the baby needs and your milk is the best thing the baby can have. The baby is almost like a parasite and they’ll take everything out of you and so if you’re taking the vitamins, they’ll get them.*

Many of the parents made similar comments, assuming that breast milk contained every kind of nourishment that a baby could possibly need. When the nutritionist explained the recommendation, most of the participating parents were surprised that they had been previously unaware of it. Several parents appeared angry that they had not been given this advice sooner. One mother in the third workshop asked:

*And when should that advice have been given? Does that advice cover the last few years? That's very interesting because I was never told that. I've had two children and I've never ever been told that.*

We then asked parents if they had ever been advised to give their baby or toddler a vitamin supplement. A small number (approximately one in six) of parents had been recommended vitamin supplementation for their child by a health professional at some point. In the first workshop a mother said her GP had prescribed her son vitamin D when it was suspected he might have rickets. In the third workshop a mother had received a prescription of vitamin drops for her son from a paediatrician because 'there's a new paper that came out about vitamin D and she's giving it to everyone on her caseload'. In the fourth workshop a mother explained that her health visitor had given her vitamin drops to put in her son's food once a day, 'Don't know why, but she just told me to do it so I did.'

However, most parents (21/25) had not received any advice about vitamin supplements and had not given their young children any kind of vitamin supplement regularly. Several parents had given their child a vitamin supplement as a temporary booster following illness or to compensate for fussy eating. Some parents were concerned that vitamin supplements were potentially harmful or just thought they were 'pointless'.

## Topic 2 Introducing cow's milk

We presented parents with the statement: 'Before 1 year of age, cow's milk should not be offered in any form.' Responses to this statement varied between the workshops:

- In workshop 1 most parents thought the statement was true.
- In workshop 2 opinion was fairly evenly split.
- In workshop 3 all parents correctly said the statement was false.
- In workshop 4 (with the youngest parents) most said the statement was true

The nutritionist explained that from weaning onwards, babies can have cow's milk in food, but they cannot have it as their main drink.

Apart from in the third workshop, where all parents answered the question correctly, parents seemed fairly unsure about whether it was safe to give babies cow's milk in their food, and why it was not appropriate to give babies under 1-year-old cow's milk as their main drink.

### Topic 3 Low-fat dairy products

We asked parents to respond to the statement: 'It is better for babies and young children aged under 2 to have low fat milk, yoghurt and cheese than full fat varieties.' This time most parents answered the question correctly as 'false', although it was only in the third workshop that *all* parents answered this question correctly.

### Topic 4 Appropriate portions of protein

We asked parents to respond to the (untrue) statement: 'Babies under 1 year should not have more than one serving each day of protein-rich foods like meat, fish, pulses or eggs.' Parents' responses were split on this question, with many parents, particularly in the fourth workshop, unsure of whether this was correct or incorrect. One mother, who was a nursery nurse, was the only parent in the second workshop to answer correctly 'false'. She explained:

*I said false because we have a national guideline thing up in the nursery and it says about portion sizes and how many meals a day they can have. It doesn't say that they can only have meat once. It's as long as it's within the right portion size, and they're only having a certain number of meals each day.*

In the third workshop, most parents incorrectly guessed that the statement was true, although they were unsure if this was correct.

### Topic 5 Adding salt and sugar to young children's food

The fifth statement we asked parents to respond to was: 'Parents should delay adding salt and sugar to their baby's food until they are at least 12 months old.' This was the only question that all parents in all four workshop groups answered correctly. In the second workshop, one mother commented, 'I still don't add any even though she's 2 now. I turn the salt grinder round the wrong way so she thinks she's having some.' In the third workshop one mother commented, 'I've put true, but that's not something I've ever heard, I just sensed it.' In the fourth workshop with young parents, most of the parents present had recently attended a cooking class at the children's centre that explicitly advised them against giving their babies food that was high in salt. Therefore, they were aware that salt was potentially harmful to young children.

### Topic 6 Identifying sugar content in breakfast cereals

In this workshop item, we asked parents to consider which of the three cereals presented was most appropriate for a baby aged 7 months. The options included a baby rusk that was very high in sugar, a chocolate-flavoured cereal that was lower in sugar than the rusk, and a wheat cereal that was low in salt and sugar. Parents had the opportunity to examine the packaging for each of these products, therefore this exercise particularly tested their label-reading skills.

The parents' responses to this exercise revealed that label-reading skills varied hugely between parents in all four groups. In the first and second workshop groups, no parents spotted that the baby rusk was the highest in sugar of the three cereals. In the third workshop group, three parents correctly identified the rusk as least appropriate and in the fourth workshop group, only one parent did this. In the second and third workshop groups, all parents correctly selected the wheat cereal as most appropriate, but in the first and fourth workshop groups, only two parents in each group did this, with the majority favouring the high sugar rusk.

This exercise revealed a common assumption among parents that any product marketed towards babies must



be appropriate and healthy for babies to eat. In the second group, all of the mothers reacted with shock and surprise when they learnt about the sugar content of the rusk. It was only in the third workshop group that some mothers were already aware of this, with one mother commenting, 'I know rusks are really bad' and another saying she knew they were 'full of sugar'.

Other discussions that took place during the workshops also suggested that while all parents were aware they should not add salt to their children's food, some were not necessarily aware of which processed foods had a high salt content. In the first workshop group a mother explained that she gave her 2-year-old son prawn crackers in the night when he was crying for his bottle. In the fourth workshop mothers gave a variety of examples of foods they fed their babies at the age of 14 months or younger. Many of these such as crisps, ready-made pasties, sausage rolls and pot noodles are high in salt.

### Topic 7 Appropriate drinks for infants

In this workshop item, we invited parents to select which drink was most appropriate for a 1-year-old. The options included a baby juice, a low sugar squash drink aimed at children and a carton of 100 per cent fruit juice. The most appropriate option was the 100 per cent fruit juice, although this juice would need to be diluted to protect the child's teeth. Again, this exercise particularly tested the parents' label-reading skills to see if they could identify the ingredients in the juices and their suitability for young children.

In three of the four workshop groups, all or nearly all parents correctly identified the low sugar squash drink as the least appropriate of the three options for a child aged 1 (this drink contains sweeteners that are not recommended for young children<sup>190</sup>). In most cases opinion was divided between whether the baby juice or the 100 per cent fruit juice was most appropriate. This was mainly because the 100 per cent fruit juice was undiluted, and parents had a reasonably good knowledge of the risk of decay that fruit juice poses to young children's teeth

through its sugar and acid content. However, not all mothers were aware of this risk of tooth decay:

*When did that recommendation about the juice come out, where you put the water into the juice?... My little boy had a lot of apple juice. Up until he was 7 he would only drink apple juice and I thought it was beneficial to him because it had fruit in it. When he went to the dentist he had seven holes in his teeth and I was mortified.*

In the third workshop, when it was explained that undiluted baby juice could damage babies' and young children's teeth, one mother asked, 'Why are they allowed to call it baby juice when it's not very friendly to babies?' Again, these comments demonstrated the widespread trust that parents place in baby brands and their frequent assumptions that any product marketed at young children must be healthy and appropriate for them.

### Topic 8 Appropriate drinking containers

In this exercise we invited parents to consider which beaker or bottle was the most appropriate for a child aged 1. The three options presented were a baby's bottle, a non-spill beaker and a free-flow beaker.

Parents' responses to this exercise demonstrated a generally good knowledge of appropriate drinking containers. In three of the four groups, all parents correctly marked the baby's bottle as least appropriate and the free-flow cup as most appropriate. In the third workshop, parents seemed particularly confident about this and in the fourth workshop several mothers explained that they had read the recommended ages for each of these bottles and beakers on the packaging.

However, several parents seemed to be unaware of the recommendation that children should have stopped using a baby's bottle by the time they are one to protect their teeth from erosion and decay.

### Topic 9 Appropriate portion sizes

In this exercise, we presented parents with three photographs showing varying sized portions of pasta. Parents were asked which portion size was most appropriate for a child aged 10–12 months. In fact, there was no correct answer to this exercise, which was designed to provide an opportunity to discuss the principle of feeding to the child's appetite (allowing children to decide when they are full).

This exercise uncovered generally low confidence and uneasiness among parents on the subject of portion sizes and how they can judge whether their children are eating an appropriate quantity.

Parents in the third workshop group were particularly concerned and confused about this issue of portion size. One mother asked, 'How do you count five a day for a baby? Because for them a portion is obviously different from a portion for us.' Another mother said,

*They say 'make sure they have five a day' and then they say 'don't give them too much'. And when you're working and everything, you feel like you're doing the wrong thing all the time.*

### Topic 10 Managing food refusal during weaning

In the final exercise the nutritionists read parents a case study describing a mother first introducing solid food to her son. They were asked to spot mistakes that the mother had made. The parents were generally good at this exercise, with most parents spotting a variety of points including:

- 7 months is a late age to introduce weaning.
- A baby offered solid food directly after a milk feed is unlikely to be hungry.
- Babies are likely to reject very bland foods (for example carrot blended with water).
- Babies should be offered a variety of flavours, not limited to sweet flavours (for example blended fruits).
- Babies should be offered freshly prepared foods (rather than just jarred foods), to ease their transition to family foods.

- At 8½ months a child should be eating regular meals and should not be offered milk as an alternative to meals (one meal of solid food a day is insufficient).

While most parents were able to identify some of the errors, parents' knowledge of recommended weaning and feeding practices varied within and between the groups. In the fourth workshop group, for example, most parents did not think that the case study was a cause for concern because they thought that the most important thing was that the baby was eating every day and putting on weight. They seemed to think that what the baby ate, and how regularly he ate, was less important, demonstrating low awareness that children can grow well on a growth chart but be deficient in some of the nutrients they need.

Some parents also showed little awareness that the first few months of introducing solid foods provide a valuable opportunity to introduce babies to a wide variety of foods. When the nutritionists explained that a baby may need to be introduced to the same food ten or more times before they become used to eating it, some parents expressed surprise.

Parents' awareness of the principle that they should try to 'model' positive eating behaviours, to encourage the same behaviours in their children, also varied considerably between and within the workshop groups.

### Summary of key findings

Most parents who took part in the workshop sessions were initially fairly confident in their knowledge of which foods and drinks were suitable for babies and young children. However, even the most knowledgeable parents were often surprised by the gaps in their knowledge. These were some of the particular gaps in knowledge we identified during the workshop:

- Very few parents were aware of the Department of Health's recommendations on vitamin D supplementation for babies and toddlers. Only about one in six parents who took part in the workshops said they had been advised by a health professional to

give their baby or toddler a vitamin supplement. Most of the parents who were given this advice had followed it.

- Some parents were very confused about why babies should not drink cow's milk and whether it is safe and appropriate for babies to consume cow's milk in food.
- Some parents were unsure of which foods were rich in protein and how much protein babies should be eating once weaned.
- Some parents did not know that fruit juice presented a risk of tooth decay and should therefore be diluted for babies and toddlers.
- Some parents were unaware of the need for babies to progress from baby bottles to free-flow beakers, and of the greater risk of tooth decay posed by bottles and non-spill beakers.
- Most parents were confused about portion sizes for babies and toddlers and few seemed familiar with the principle of feeding to the child's appetite.

One of the most important findings from the workshop exercises was that parents' label-reading skills were often poor. Some parents appeared to rely on the assumption that products marketed as being suitable for babies and toddlers were by default healthy and appropriate for them to eat or drink.



## 6 Challenges to parents' ability to provide good early childhood nutrition

As we explain in the previous chapter, one of the most important challenges that parents experience with regard to feeding their baby or toddler a healthy diet is knowing what constitutes a 'healthy diet'. Our survey and workshop exercises provided an objective assessment of the nutritional knowledge of parents, but in this chapter we explore more subjectively the various challenges that parents believe they face in providing their children with a healthy diet.

### Survey responses: challenges to healthy eating for babies and toddlers

Mothers responding to the Bounty Word of Mum survey were asked whether they agreed or disagreed with a series of statements describing various challenges they might face in feeding their baby or toddler:<sup>191</sup>

- 50 per cent of mothers agreed ('strongly' or 'slightly') that they were not sure about the correct portion size for their baby/toddler.
- 36 per cent of mothers agreed ('strongly' or 'slightly') that they did not have time to prepare the foods they would like to for their baby/toddler.
- 32 per cent of mothers agreed ('strongly' or 'slightly') that their baby/toddler wanted to eat unsuitable foods.
- 28 per cent of mothers agreed ('strongly' or 'slightly') that 'I cannot always afford to buy the foods or vitamin supplements I would like to for my baby/toddler.'
- 20 per cent of mothers agreed ('strongly' or 'slightly') that 'I am not very confident about preparing food for my baby/toddler.'

- 13 per cent of mothers agreed ('strongly' or 'slightly') that they were not sure which foods were healthy for their baby/toddler to eat.
- 13 per cent of mothers agreed ('strongly' or 'slightly') that 'I worry that my baby/toddler is underweight.'
- 10 per cent of mothers agreed ('strongly' or 'slightly') that 'I do not know how to prepare home cooked foods for my baby/toddler.'
- 10 per cent of mothers agreed ('strongly' or 'slightly') that 'I worry that my baby/toddler is overweight.'
- 8 per cent of mothers agreed ('strongly' or 'slightly') that it was difficult to buy foods for their baby/toddler because they felt food available in their local area was unsuitable.

The fact that half of mothers surveyed agreed that they were not sure about portion sizes for their baby or toddler corroborates the findings presented in the previous chapter, which demonstrated that many parents lack confidence on this issue, and are confused about how messages such as 'five a day' translate to young children.

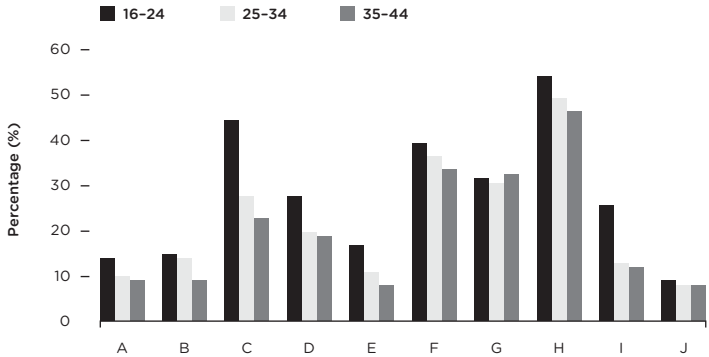
The parents' answers are presented, classified by age and social grading, in figures 13 and 14. Figure 13 demonstrates that in almost every case, mothers aged 16–24 were more likely to agree that they experienced the challenges described in the statements than mothers in the older age groups. For example, mothers in the youngest age group were more than twice as likely as mothers in the older age groups to agree that they were not sure which foods are healthy for a baby or toddler (26 per cent compared with approximately 12 per cent for age groups 25–34 and 35–44). Figure 14 demonstrates that there was a less linear relationship between mothers' experience of these challenges and their social grade.

### Challenges to early childhood nutrition discussed in the research workshops

In the research workshops undertaken to inform this report, parents discussed a variety of challenges that they had



Figure 13 Mothers in each age group who agreed that they experience various challenges in feeding their baby or toddler (%)<sup>191</sup>

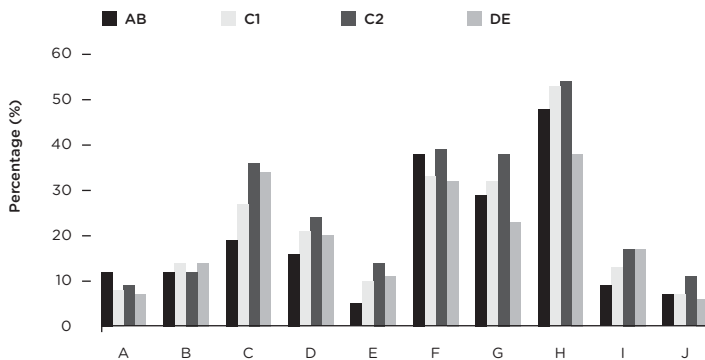


- A I worry that my baby/toddler is overweight  
 B I worry that my baby/toddler is underweight  
 C I cannot always afford to buy the foods or vitamin supplements I would like to  
 D I am not very confident about preparing food for my baby/toddler  
 E I do not know how to prepare home cooked foods for my baby/toddler  
 F I do not have time to prepare the foods I would like to for my baby/toddler  
 G My baby/toddler wants to eat foods that I do not think are suitable for him/her  
 H I am not sure about the correct portion sizes for my baby/toddler  
 I I am sure which foods are healthy for my baby/toddler to eat  
 J Suitable food is not available in my local area

experienced in feeding their babies or toddlers. Some of the challenges that relate to the quality of advice and support that parents received from public services will be discussed in chapter 8. This chapter will highlight eight sets of challenges that parents mentioned during the research workshops and in the Bounty Word of Mum survey:

- physical challenges associated with infant feeding
- anxiety caused by the unfamiliarity of weaning and contradictory advice
- financial challenges
- time pressures on preparing foods and family mealtimes

Figure 14 **Mothers in each social grade category who agreed that they experience various challenges in feeding their baby or toddler (%)**<sup>192</sup>



- A I worry that my baby/toddler is overweight
- B I worry that my baby/toddler is underweight
- C I cannot always afford to buy the foods or vitamin supplements I would like to
- D I am not very confident about preparing food for my baby/toddler
- E I do not know how to prepare home cooked foods for my baby/toddler
- F I do not have time to prepare the foods I would like to for my baby/toddler
- G My baby/toddler wants to eat foods that I do not think are suitable for him/her
- H I am not sure about the correct portion sizes for my baby/toddler
- I I am sure which foods are healthy for my baby/toddler to eat
- J Suitable food is not available in my local area

- low cooking skills
- challenges around fussy eating
- challenges to healthy eating associated with childcare arrangements

### Physical challenges associated with infant feeding

We asked mothers in each of the four workshops whether they had experienced any challenges with feeding their newborn babies. The main challenges mothers mentioned included birth-

related complications that had affected their ability to breastfeed (for example having had a caesarian birth), a physical impairment that made breastfeeding more difficult, and physical issues affecting the baby such as tongue-tie, reflux and allergies and intolerances (including cow's milk, wheat, nuts and strawberries).

### Anxiety caused by the unfamiliarity of weaning and contradictory advice

Many parents mentioned fear and anxiety about taking a big step (weaning) with low confidence or a lack of knowledge about preparing or storing food for babies. This was exacerbated by babies being sick or not eating enough during this period.

Several mothers also mentioned the challenge of trying to reconcile contradictory advice during the weaning process: 'When you get too much information that just contradicts itself you think "well what do I do?" and then you always turn to your family.' This issue of contradictory advice will be discussed further in chapter 8.

### Financial challenges

As we have seen above, in the survey of parents 28 per cent of mothers agreed to some extent with the statement: 'I cannot always afford to buy the foods or vitamin supplements I would like to for my baby or toddler.' However, challenges relating to the cost of providing children with a healthy diet were rarely directly mentioned in the research workshops, perhaps because of the stigma or embarrassment that would be caused by discussing this in a group setting in front of other parents.

Although parents rarely discussed challenges related to the cost of food directly, some of their comments hinted at financial challenges. For example, in the fourth workshop, when we asked the parents how they chose weaning foods, several mothers explained that the special offers at their local supermarket were an important factor, and several other mothers in the group remarked that special offers were an important influence on their

choices. This suggests that retailers and baby food brands can have a lot of influence on how less wealthy mothers feed their children. Preparing food from scratch might have been cheaper for these mothers, but this would require more advanced cooking skills or knowledge of the nutritional value of different foods than they appeared to have (discussed further below).

Other comments suggested that parents would sometimes spend above the odds if they thought that a particular brand or product would be better for their child, and had subsequently found out that less expensive brands were as suitable (if not more so). Several examples given by the parents in these sessions suggested that (as observed in the previous chapter) parents would often rely on food with more expensive brand names, assuming them to be of higher quality, when actually they may be less appropriate for young children than cheaper alternatives. This lack of knowledge has the potential to impact negatively on family finances.

### Time pressures on preparing foods and family mealtimes

While parents participating in the workshops were reluctant to discuss financial pressures associated with feeding their children a good diet, mothers in the first, second and third workshops all mentioned time pressures as a constraint, and a reason why many turned to pre-made jarred foods. Working mothers also found it hard to cook and to eat as a family. One said:

*Because me and my partner both work and we don't get in til 5:30 or 6, my daughter and son aren't going to wait until 6 o'clock for their tea. Obviously, my son's going to get his tea at nursery at about 4 and my daughter's going to be fed at about 5, so we're all feeding at different times.*

### Poor cooking skills

The parents in the fourth focus group, with the youngest parents, did not directly discuss time pressures associated with feeding their babies. Instead it seemed that they chose quick and easy options because they lacked confidence with cooking, or did

not prioritise taking the time to prepare healthy meals. One mother explained that aside from her, the main person who prepared food for her son was ‘his dad... because I can’t cook. I just cook spaghetti.’

When they were asked how they planned meals for their babies, the mothers mainly responded that they didn’t really plan ahead too much. One mother explained:

*Mine’s just a quick, ‘right, he’s having this’ or I go down... and just get him a pasty. I don’t decide what he’s having in the morning, it’s just when he’s ready I give him something.*

### Challenges around fussy eating

One of the major challenges that parents mentioned in feeding their toddlers was fussy eating:

*[I make decisions about what to feed my toddler... Kind of from him. Because he’d reached about 18 months and when I had a brilliant eater, he would eat vegetables and fruit. And then he became this fussy, finicky little boy... I now spend my whole time hiding food in food, to give to him.*

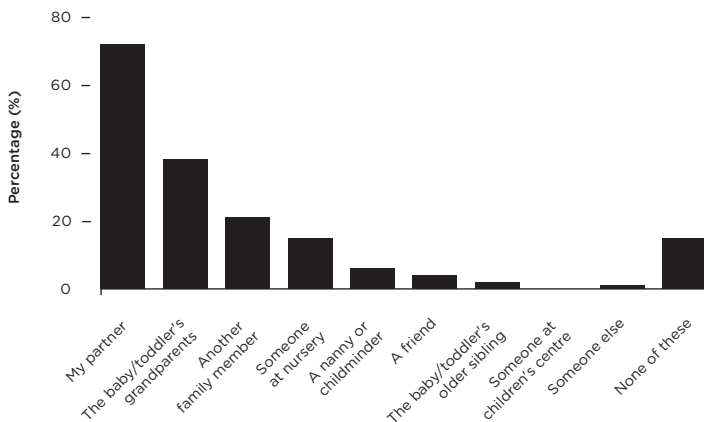
*My daughter, she can’t eat. She’ll only eat chocolate or yoghurt. I’ll take her to the GP so many times, because she’s so tiny and she can’t eat. And the GP keeps on telling me, just try, she’ll eat when she feels like eating.*

*My little boy... was fine as a baby but then he wouldn’t eat any food that was messed up together on the plate... everything had to be separate... He’s 9 now but he’s still like that now... That’s actually causing him issues because he won’t try and taste different things.*

### Challenges to healthy eating associated with childcare arrangements

Mothers participating in the Bounty Word of Mum survey were asked who else feeds their baby or toddler in an average week (see figure 15). Just under three-quarters of the mothers responding said that their partner also feeds their child during

Figure 15 Who else feeds your baby or toddler in an average week?



Source: Bounty Word of Mum survey 2012

an average week. Grandparents also lend a hand with feeding children every week for around two in five mothers.

Some of the parents taking part in the research workshops identified informal childcare – particularly that provided by grandparents – as a challenge to their efforts to provide their children with a healthy diet:

*My mum looks after mine one day and when my oldest started school he never had sweets or anything and he said 'every Monday when granny picks me up from school, she has a pack of Haribo'. And I said 'you've started him on the sweets!' And she said 'well yeah, it's a treat'... I was really annoyed. It's really hard because when you're relying on someone for childcare, and especially when it's your mum, you've got to be very careful. It's difficult.*

Several of the mothers explained that they addressed this issue by providing food for their child to eat while cared for by their parents or parents-in-law. This was also thought to save time for grandparents who were giving up their time to provide

free child care, so they could spend their time with their grandchildren doing fun activities rather than preparing meals:

*It's my in-laws as well as the nursery, and they're a nightmare. I've upset her a few times about it and I've started taking my own food because every time it's beans, spaghetti hoops, and then beans again. I said 'no!' So I've started taking my own food down and I said I don't want them just eating tinned food, I want them to have something proper.*

*It's got to the stage where I send like a packed lunch of stuff with him to his dad because that's the only way I'm guaranteed that he won't have rubbish. But his dad kinds of rewards him, because he's not there, with junk.*

The mothers whose children attended nurseries tended to be very appreciative of the quality of food that was on offer:

*All of us have children at the nursery and they do have a very varied menu. I think that was one of the first things I was quite impressed by. They also have lots of afternoon snacks with fruit.*

*My little boy eats sardines on toast at nursery and I started buying them in purely because of that. It's only through nursery that I could give him a tuna salad with no sauce on and he'd happily eat his way through it. At first it was just cucumber and tomatoes that he'd eat, but now he'll eat spring onion, lettuce, peppers... and I think it's the influence of nursery.*

*My little girl was never keen on things, like she wouldn't eat tomatoes or anything like that. But she went to nursery and because everyone else was eating them, she started eating them.*

Therefore, parents' experiences of relying on other forms of childcare were mixed, with parents who exerted more control over their children's diets experiencing more challenges in sharing this responsibility with others.

Chapter 8 will explore in more detail parents' experiences with services that are intended to support them with their children's nutrition at the different stages of infant feeding, introducing solid food and the toddler years.

## Summary of key findings

This chapter explored various challenges that parents experience in feeding their babies and toddlers a healthy diet. The parents' survey found that 50 per cent of mothers were unsure about correct portion sizes for their baby or toddler, 36 per cent felt they did not have time to prepare the foods they would like to for their baby or toddler, 20 per cent were not confident about preparing foods for their baby or toddler and 13 per cent were unsure of what is healthy for their baby or toddler to eat.

In the research workshops, mothers discussed physical challenges with breastfeeding, which some had been able to overcome with formal or informal support. Mothers also discussed experiencing anxiety as a result of contradictory advice on weaning, financial challenges associated with feeding children within a budget, time pressures on preparing meals, lack of cooking skills and challenges caused by children's fussy eating.

Childcare (including formal and informal) also presented a challenge for some mothers because they felt that they were unable to control what their children ate when they were not there. This was particularly a problem when grandparents provided informal childcare. In most cases, the mothers we spoke to were fairly pleased with the quality of food provided by nurseries. In some cases, mothers felt that the eating routines at nursery had helped to tackle fussy eating and had broadened their toddlers' acceptance of new foods.



# SECTION 3 NUTRITION IN PUBLIC POLICY AND GAPS IN SUPPORT FOR PARENTS



## 7 Public policy approaches to supporting good early childhood nutrition

The early years are now regarded by politicians and policymakers as a critical period for intervening to improve children's outcomes. A series of independent reviews commissioned by the UK Government, including Frank Field MP's independent review on poverty and life chances, Graham Allen MP's review on early intervention and Dame Clare Tickell's review of the Early Years Foundation Stage, have all highlighted the importance of the pre-school years as a crucial developmental phase.<sup>192</sup> Each report made recommendations on how the Government can better help children to realise their potential by targeting more support for children and families at an earlier point in children's lives.

Key government strategies for tackling social disadvantage and reducing inequalities, such as the public health white paper published in November 2010, now promote the importance of early intervention: 'Starting well, through early intervention and prevention, is a key priority for the Government, developing strong universal public health and early education with an increased focus on disadvantaged families.'<sup>195</sup> However, within this agenda, early intervention to support and improve infants' and young children's nutritional start in life has received relatively little attention. Even the Government's October 2011 obesity strategy has little to say about taking a preventative approach to supporting good nutrition in the early years; instead it focuses more on identifying children who are already overweight and providing 'child weight management services'.<sup>196</sup> And as we shall see below, where policy strategies do exist, they often rely on the assumption that health or early years' professionals have adequate nutritional knowledge to support parents, without putting mechanisms in place to ensure that this is the case.

This chapter provides a summary of the main delivery mechanisms that exist in central government policy for supporting good early childhood nutrition, presented in the following sections:

- national campaigns and information services for parents
- supporting parents through health services
- improving early nutrition through early education settings
- overcoming financial barriers to good early childhood nutrition
- regulating the food industry

Chapter 8 will then present the perspectives of the parents who participated in Demos's research workshops on the quality of advice and support on early childhood nutrition that is available to them through public services.

## National campaigns and information services for parents

### Change4Life and Start4Life

In a document published in October 2011, the Department of Health outlines a three-year strategy for its social marketing programmes Change4Life and Start4Life. It observes in this document that most preventable diseases in the modern day are 'lifestyle-related'. Therefore it identifies tackling unhealthy behaviours such as smoking, poor diet, lack of physical activity and drinking too much alcohol as a key focus for government efforts to improve public health.<sup>197</sup>

As part of its strategy for combating these various unhealthy behaviours, the Department of Health launched Change4Life in January 2009. This programme initially targeted the parents of children aged 5–11 as part of the Government's childhood obesity prevention strategy. It offered information and tools to support behaviour change in families, and to support the activities of local authorities and health professionals seeking to support healthy lifestyles.

In January 2010 a new social marketing programme aligned to Change4Life was launched to provide information

and materials for parents of children aged under 2, called Start4Life.<sup>198</sup> This is a national campaign aimed at pregnant women, their partners and key influencers such as close family and friends.<sup>199</sup> Start4Life delivers six key messages promoting healthy behaviours to parents of children aged under 2:

- ‘Mum’s milk’ – initiating breastfeeding
- ‘Every day counts’ – encouraging continued breastfeeding
- ‘No rush to mush’ – delaying weaning
- ‘Taste for life’ – encouraging a wide range of age-appropriate foods
- ‘Sweet as they are’ – avoiding added sugar
- ‘Baby moves’ – promoting physical activity<sup>200</sup>

These are complemented by eight public health messages for families with children aged 5–11, which are promoted through Change4Life:

- ‘Five a day’ – eating at least five portions of fruit and vegetables every day
- ‘Sugar swaps’ – reducing consumption of added sugars
- ‘Cut back on fat’ – reducing fat consumption
- ‘Snack check’ – reducing unhealthy snacking
- ‘Me-size meals’ – serving age-appropriate portions
- ‘Meal time’ – eating three regular meals per day
- ‘60 active minutes’ – doing at least an hour of moderate intensity physical activity per day
- ‘Up and about’ – avoiding sedentary behaviour<sup>201</sup>

The main base of the Start4Life campaign is a website ([www.nhs.uk/start4life](http://www.nhs.uk/start4life)) that provides information on pregnancy nutrition and weaning and links to the NHS Information Service for Parents (see below), local children’s centres, Change4Life and NHS Choices. It also hosts resources for the use of health and early years professionals, such as leaflets and posters.<sup>202</sup>

It is notable that the Department of Health’s 2011–14 social marketing strategy presents Start4Life very much as a subsidiary of the broader Change4Life programme. There is little emphasis

on Start4Life as an important *preventative* intervention, and the role of health professionals in disseminating the Start4Life messages on nutrition receives very little attention in the strategy, although – as we have seen in chapter 4 – health professionals are a favoured route for parents of young children for receiving information about nutrition and health issues. Instead the strategy focuses mainly on social marketing strategies for communicating directly with parents and children (via Facebook or online games) and on encouraging parents to interact directly with the Change4Life website, rather than disseminating Change4Life materials through other types of website that parents visit. This seems surprising, particularly as the strategy recognises that ‘many people would prefer to interact with Change4Life in the digital environments that they already visit’.<sup>203</sup>

It is also apparent that children aged 3 and 4 are currently missed out by the Start4Life and Change4Life strategies, which do not have specific health messages and information aimed at this age group. Therefore, it would appear that there are opportunities for developing a more joined-up approach to promoting messages about good nutrition to parents of young children from birth to age 5.

### The NHS Information Service for Parents

The NHS Information Service for Parents<sup>204</sup> was launched in May 2012, and is designed to complement existing face-to-face contact with health professionals. It provides information to parents on a range of health and developmental issues, including nutrition in pregnancy and infancy, and is delivered in a text message or email format. Currently parents expecting a baby or those who have a baby aged under 4 weeks can register for the service, although there are plans to extend the service to older children in time.

Messages sent by text or email are tailored so as to be relevant to the stage of pregnancy or the baby’s age. They cover a range of topics, including babies’ development, preparing for labour, coping with sleepless nights, how parents can look after

their own health, choosing childcare, and accessing benefits. The emails link to health information produced by the NHS such as the pregnancy and baby guide on NHS Choices. There is also video content providing advice on breastfeeding and other topics. The text messages provide short nuggets of information and advice, plus the telephone numbers of helplines to call for further advice. Emails become less frequent as the child ages. The emails arrive each week during pregnancy and until the baby is 3 months old. From 4 months onwards, they are sent monthly. This service offers a promising mechanism for directing parents to the nutrition-related information and advice on the Start4Life and NHS Choices websites, at the times when this content will be most relevant to them.

## Supporting parents through health services

### The Healthy Child Programme

The Healthy Child Programme is a universal and progressive programme intended to provide preventative support to parents to enable them to meet their children's broad health and developmental needs from pregnancy to age 5.<sup>205</sup> It is led particularly by health visiting teams, in partnership with other local universal and specialist services (such as GPs, midwives, early education services, drug and alcohol services and so on).

The most recent Healthy Child Programme policy document was published in October 2009. It explains that this updated version of the Programme includes a greater emphasis on public health priorities, such as 'the early identification and prevention of obesity in children'.<sup>206</sup> It includes:

*an emphasis on breastfeeding, delaying weaning until babies are around six months old, introducing children to healthy foods, controlling portion size, limiting snacking on foods that are high in fat and sugar, and encouraging an active lifestyle.*<sup>207</sup>

The programme also seeks to identify children who are at higher risk of obesity and provide more intensive support to their families.<sup>208</sup> Another nutrition-related public health

challenge is improving children's dental health by encouraging parents not to add sugar to weaning foods, encourage tooth brushing and support parents to progress their young children from drinking from a bottle to drinking from a cup (from 6 months), while discouraging the use of bottles after 1 year of age.<sup>209</sup>

Table 4 sets out the various nutrition-related information that the Healthy Child Programme aims to provide to parents at various stages following the birth of their child (until age 5), by ensuring that parents are given the right information in a timely way, to promote children's health and prevent obesity. However, the design of this programme displays some assumptions that could potentially act as a barrier to the programme achieving its intended aims. For example, there is a great emphasis on delaying weaning until 6 months, without an acknowledgement that some parents do wean their babies earlier, and therefore need information about weaning and healthy eating before their baby is 6 months old. Likewise, advice on dental health is not provided until the child is aged 6 months, although the majority of parents wean before six months. It is also notable that advice on healthy weaning is only included within the 'progressive' strand of the programme, suggesting that most parents do not need this advice. Our research workshops for this project suggest that parents from a variety of backgrounds are anxious or confused about weaning, and would benefit from clear and consistent advice from a health professional.

It is also notable that the 2008 Healthy Child Programme policy document does not include strategies for ensuring that health visitors have (and maintain) the specialist knowledge that they need to fulfil their important role of giving advice and support on early childhood nutrition to parents.<sup>210</sup> Instead Department of Health policy tends to assume that this knowledge is part of health visitors' general public health knowledge, although it does not feature in health visitors' initial training in any depth.<sup>211</sup> The Healthy Child Programme document does identify the need to support health visitors' ongoing professional development<sup>212</sup> and identifies some of the competencies that health visitors need to develop (including



Table 4 **Messages relating to early childhood nutrition given to parents through the Healthy Child Programme**

	Universal	Progressive (including universal)	Progressive (high risk families)
Birth to 1 week	<p>Initiate breastfeeding and provide information about local support groups. Give parents who feed with formula appropriate advice on safe feeding. Information about vitamin supplements and healthy start.</p>	<p>Information on delaying the introduction of solids until six months.</p>	<p>Intensive evidence-based programmes such as Family Nurse Partnership 'Multimodal support'</p>
1-6 weeks	<p>Support continuation of breastfeeding. Individual support and advice to promote exclusive breastfeeding. Information on vitamin supplements. Information on delaying introduction of solids until 6 months. Advice on safe formula feeding for those who need it.</p>	<p>Breastfeeding peer support schemes.</p>	<p>Children at risk of obesity:</p> <ul style="list-style-type: none"> <li>· Additional support with feeding the baby including advice about deferring weaning</li> <li>· advice on nutrition and exercise for the whole family</li> </ul>
6 weeks to 6 months	<p>Baby has 6-8 week health review. Baby's feeding status is recorded (eg breastfeeding, bottle feeding or mixed feeding). Review of general progress and delivery of key messages about parenting and baby's health.</p>	<p>Additional encouragement and support with exclusive breastfeeding. Peer support schemes. Advice about family nutrition and deferral of weaning.</p>	<p>Family Nurse Partnership, intensive home visiting or referral to other specialist agencies to provide additional support.</p>

Table 4 **Messages relating to early childhood nutrition given to parents through the Healthy Child Programme – *continued***

	Universal	Progressive (including universal)	Progressive (high risk families)
Six months to one year	Health promotion: raise awareness about dental health and healthy eating. Dental health advice includes not adding sugar to weaning foods; brushing children's teeth and discouraging bottle feeding from 1 year of age.	Advice on healthy weaning, appropriate amounts and types of food, portion size and mealtime routines.	Family Nurse Partnership, intensive home visiting or referral to other specialist agencies to provide additional support.
1–3 years	Two and a half year health review. Advice on nutrition and physical activity, healthy eating, portion size and mealtime routines. Advice on dental health.	Children at risk of obesity should be assessed and potentially a follow-up intervention should be arranged.	Family Nurse Partnership and Parenting programmes (eg Triple P).
3–5 years	Early years services provide advice on nutrition. Measure child's height and weight for the National Child Measurement Programme.	As above.	As above.

early identification and prevention of obesity and the promotion and support of breastfeeding), but there is no mention of early childhood nutrition as a key area of specialist knowledge.

### Health Visitor Implementation Plan (2011–2015)

The *Health Visitor Implementation Plan* is a strategy to support the expansion and development of the health visitor workforce between 2011 and 2015 (over this time period the Coalition Government pledged to increase the health visiting workforce by 4,200 health visitors).<sup>213</sup> The Plan sets out how health visitors will deliver the Healthy Child Programme across four levels (according to the individual family's level of need):

- 'community': a range of universal services available in the community (such as Sure Start services), which health visitors publicise to parents
- 'universal': a range of services that health visitors provide directly to all families as part of the Healthy Child Programme
- 'universal plus' – a rapid response from the health visiting team for parents who need specific help (for example, with postnatal depression, weaning or concerns about parenting)
- 'universal partnership plus': support from the health visiting team to help parents to deal with more complex issues over a longer period of time; includes using services at Sure Start or charities and where appropriate the Family Nurse Partnership<sup>214</sup>

A key aim of the plan is to increase the capacity of the health visiting service nationally to ensure that health visitors do not fail families:

*The lack of capacity means that health visitors are too often unable to perform the wider public health role that they have trained for, working with communities to improve health outcomes. Health visitors are frustrated by the gap between the role they have trained for and the amount they can do in practice.*<sup>215</sup>

However, this document identifies clearly the challenges involved in increasing the health visiting workforce so rapidly, and as such there is a much greater emphasis on training new recruits to health visiting, rather than on ongoing professional development and updating the skills and knowledge of the existing health visiting workforce.

### The Family Nurse Partnership

The Family Nurse Partnership was first developed in the USA. It is a highly intensive home visiting programme that provides ‘vulnerable’ first-time mothers with 50 visits by a specially trained nurse from the antenatal period until the child is 2 years old. The visits are focused on improving the mother’s health in pregnancy, and supporting the child’s health and development by improving parenting, supporting healthy lifestyles and improving access to healthcare. International evaluations have demonstrated high success rates, with key outcomes including:

- fewer subsequent pregnancies
- increased maternal employment
- higher cognitive performance among children
- better social behaviour by children in pre-school years
- fewer arrests of children when they reach adolescence<sup>216</sup>

In the UK, the Family Nurse Partnership has been tested since 2007, and a randomised controlled trial of 18 sites will report in 2013. The outcomes that are being measured include:

- smoking during pregnancy
- birth weight
- breastfeeding
- infants’ and children’s admissions to hospital for injuries and ingestions
- further pregnancies
- child development at age 2

The first formative report for the first ten sites indicated a positive impact on breastfeeding rates among participating mothers.<sup>217</sup> There are no measured outcomes associated with infant and toddler nutrition following the introduction of solid food, although the programme continues until the child is aged 2. However, anecdotal evidence from the family nurses collected in the third evaluation report on the Family Nurse Partnership (which followed 1,303 clients participating in the ten wave 1 sites in England until their children had reached 24 months)

suggested that nutrition had improved in some of the participating families.<sup>218</sup>

In October 2010 Health Secretary Andrew Lansley announced that the Coalition Government will double the number of disadvantaged families who have access to the Family Nurse Partnership health visiting programme, so that an additional 6,000 families can benefit from the programme by 2015.<sup>219</sup> The Department of Health is providing a contribution towards health commissioners' first year set-up costs in 2011/12.<sup>220</sup> A team of four nurses and a supervisor have sufficient capacity to support 105 clients. Once established locally the commissioning body can adapt the eligibility criteria of their Family Nurse Partnership programme to local needs using the Department of Health's eligibility framework.

The intention is that the Family Nurse Partnership programme will complement the expansion of the health visiting workforce under way and provide 'a new model of practice' to inform the universal health visiting service. Registered health visitors working as family nurses will be considered as contributing towards the overall health visiting workforce (and the target of 4,200 extra health visitors by 2015).<sup>221</sup> The Department of Health is working with Family Nurse Partnership sites to identify and share good practice in integrating the programme within universal services.<sup>222</sup>

Case study 2 in chapter 10 describes how one family nurse partnership team is taking action to increase the family nurses' knowledge of early childhood nutrition.

### Improving early nutrition through early education settings

As we have seen above, health policy focusing on nutrition in the early years clearly recognises the role of parents in ensuring that their children have a healthy diet. However, in the context of early education policy (administered by the Department for Education rather than the Department for Health), the emphasis has been much more squarely on the role of early education settings in providing a healthy diet for young children, rather

than on parents' role in feeding their children. Therefore, recent nutrition-related reforms led by the Department for Education (and formerly Department for Children, Schools and Families) have focused particularly on improving the quality and appropriateness of meals provided to young children in early education settings.

The former Labour Government introduced the Early Years Foundation Stage in 2008 to provide a consistent framework for early years providers (including nursery schools, Sure Start children's centres, childminders and other day-care providers) setting out the quality of the educational environment that they should be providing for children between birth and age 5.<sup>223</sup> This statutory framework included four key legal requirements:

- Where children are provided with meals, snacks and drinks, these must be healthy, balanced and nutritious.
- Those responsible for the preparation and handling of food must be competent to do so.
- Fresh drinking water must be available at all times.
- Registered providers must notify Ofsted of any food poisoning affecting two or more children looked after on the premises.<sup>224</sup>

However, while early years providers were expected to ensure that meals provided for children in early years settings were 'healthy, balanced and nutritious', there was a lack of clear, authoritative guidance for providers about what form this might take, particularly as young children's nutritional needs change substantially between birth and age 5. Therefore, in 2010 the Department for Education commissioned the School Food Trust to review standards and guidance on food and nutrition in early years settings and make recommendations for improving this guidance.<sup>225</sup>

### School Food Trust review of food and nutrition in the early years (2010)

The School Food Trust set up the Advisory Panel on Food and Nutrition in Early Years to consider how guidance on food and nutrition for children aged 1–5 could be improved and to make recommendations to the Department for Education. These recommendations would feed into the independent review of the Early Years Foundation Stage led by Dame Clare Tickell. The advisory panel made 11 recommendations in total in their report *Laying the Table*, which was published in November 2010,<sup>226</sup> including:

- The Government should provide clear and practical guidance on how the nutritional needs of children can be met in early years settings (this guidance should be voluntary but supported by training resources and self-evaluation tools).
- Early years practitioners should have access to training in how to meet the nutritional needs of young children, and ‘learning to work with families to support individual children’s nutritional requirements’.
- Early years settings should involve parents and children when implementing their policies on healthy eating and learning about food.
- Ofsted should regularly conduct themed inspections on food and nutrition in early years settings.
- When the Government produces new guidance on food and nutrition in the early years, this should be disseminated to parents and early years settings.

Therefore, the School Food Trust’s review did consider to some extent the role of early years settings (and central government) in working with parents to meet young children’s nutritional needs, but the role of parents was not a central focus of the review.

### Independent review of the Early Years Foundation Stage (2011)

The School Food Trust’s review was subsequently endorsed by Dame Clare Tickell’s independent review of the Early Years

Foundation Stage, which agreed that the requirements set out in the 2008 *Statutory Framework for the Early Years Foundation Stage* should be unchanged (for example that ‘healthy, balanced and nutritious food’ must be provided), but that more voluntary guidance was needed to explain how this might work in practice. Dame Clare Tickell wrote in her report, ‘I recommend that the Government act on the report of the Advisory Panel for Food and Nutrition in Early Years and consider providing further advice and good practice for practitioners.’<sup>227</sup>

Tickell’s report also discussed more broadly the importance of children’s home environment: ‘The most important influences on children’s early development are those that come from home.’ After the role of the family, the report identified ‘good quality early years provision’ as the second most important influence on children’s outcomes at age 5. It also observed that early years settings can assist parents ‘to develop effective home learning environments’. Therefore, Tickell argued that the Early Years Foundation Stage should ‘go further’ and give ‘greater emphasis... to the role of parents and carers as partners in their children’s learning’.<sup>228</sup> She also recommended that early years practitioners ‘have access to the necessary resources needed to support the incorporation of effective parental engagement into their practice’.<sup>229</sup> However, the Tickell review did not specifically link these two ideas to suggest a role for early years settings in supporting parents to learn more about their children’s nutritional needs, and thereby support better nutrition at home.

Other key recommendations from the Tickell review included providing parents with an explanation of the aims and purpose of the Early Years Foundation Stage when their child starts in an early years setting, and giving them a ‘short written summary’ of their child’s development (in the ‘prime areas’ of personal, social and emotional development, communication and language and physical development) at some point between the ages of 2 and 3.<sup>230</sup> In this case, Tickell defined ‘physical development’ as including a child’s capacity for self-care, one aspect of which is a child’s ability to ‘communicate their physical needs for things such as food and drink’.<sup>231</sup>



### Voluntary guidelines on food and drink (January 2012)

Following the recommendations by the School Food Trust and the Tickell review, the Department for Education commissioned the School Food Trust to develop voluntary food and drink guidelines for early years settings in England, which were published in January 2012. These guidelines cover: why healthy eating for young children is important; planning menus; providing a varied and balanced diet; appropriate portion sizes for children of different age groups (between 1 and 5); the number of meals and snacks children need in one day; and encouraging healthy eating behaviours.<sup>232</sup>

The voluntary guidelines suggest that ‘involving parents and their children in food and drink provision is an important aspect of the Early Years Foundation Stage framework, as it helps to reinforce good eating habits for life’.<sup>233</sup> The guidelines suggest a variety of ways in which early years settings should engage with parents on nutrition, including:

- liaising with parents to make sure that children always eat breakfast (at home or in the setting)<sup>234</sup>
- informing parents about the routine for meals and snacks, the setting’s food policy and menus for meals and snacks, as well as inviting feedback
- giving parents regular feedback on how well their children are eating
- involving the setting’s cook or chef in talking to parents about food
- including the children in planning menus and talking about food<sup>235</sup>

Finally, the guidelines also suggest that if an early years practitioner is concerned about a child’s eating (or weight), they should ‘talk to their parents and health professionals such as health visitors, dietitians or registered nutritionists’. However, the guidelines do not suggest that early years settings should specifically take a role in educating parents about their children’s nutritional needs, or supporting parents to develop skills (such as label reading and cooking), which might help parents to make healthy choices and feed their children a healthy diet at home.

### Updated Early Years Foundation Stage framework (March 2012)

The Department for Education published its updated Statutory Framework for the Early Years Foundation Stage in March 2012, to become mandatory from September 2012. This new framework followed the recommendations of the Tickell review fairly closely, stipulating that children's learning and development should cover seven areas, including three 'prime areas' (communication and language; physical development; and personal, social and emotional development). As with the Tickell review, it stipulates that within the physical development category, 'Children must also be helped to understand the importance of physical activity, and to make healthy choices in relation to food.'<sup>236</sup>

One of the key aims of the Early Years Foundation Stage is to support 'partnership working between practitioners and with parents and/or carers'. To support the aim of partnership working, the Framework stipulates that each child must have a key person allocated to them and parents must be informed of the key person and their role in meeting the child's needs. The key person 'must seek to engage and support parents and/or carers in guiding their child's development at home' and should involve specialist support where necessary. However, this role is discussed in a broad sense and is not directly linked to a responsibility for early years settings to work in partnership with parents to promote healthy eating.

As well as adopting the Tickell review's recommendations for key learning and development goals, the new Framework also took up Tickell's recommendations:

- Early years settings should review children's progress between the ages of 2 and 3.
- Practitioners should discuss a summary of the child's development (and how this can support learning at home).
- Practitioners should seek to use this document to inform the Healthy Child Programme's developmental review at age 2.<sup>237</sup>

The updated Early Years Foundation Stage framework also included similar requirements to those in the 2008 document on early years settings providing children with a healthy diet:

- Meals, snacks and drinks must be ‘healthy, balanced and nutritious’ (this requirement is now underpinned by the voluntary School Food Trust guidelines).
- Early years settings must obtain information about children’s dietary requirements, preferences and allergies and must act on information provided by parents.
- Fresh drinking water must be made available.
- There must be adequate facilities for providing healthy meals, snacks and drinks.
- Staff preparing and handling food must be competent to do so and those involved in group provision must receive training in food hygiene.
- Registered providers must notify Ofsted of any food poisoning affecting two or more children looked after on the premises.
- Providers must make information available to parents about food and drinks provided for children.<sup>238</sup>

Therefore, the updated Early Years Foundation Stage framework clearly sets an expectation that early years settings will work in partnership with parents to support children’s learning, and inform parents about the food that is provided to children in early years settings. However, there is little expectation that early years settings should take a role in educating parents about early childhood nutrition or helping them to develop the skills they might need to provide a healthy diet at home.

### School Food Trust ‘Eat Better, Start Better’ training initiative

To help implement and build on the School Food Trust’s new voluntary food and drink guidelines, the Department for Education has funded the School Food Trust to pilot a new training package called Eat Better, Start Better in five local authority areas (Hertfordshire, Southwark, Stoke-on-Trent, Gloucestershire and Gateshead). The package includes two courses: one to help early years and health professionals to support settings to implement the guidelines and one to train early years practitioners to run healthy cooking sessions with

families. The first stage of the pilot ran between November 2011 and March 2012, to be rolled out further in 2012 and 2013. This initiative will be evaluated to build evidence on effective practice in implementing the guidelines and supporting families with young children to eat healthily at home.

Therefore, while the Government is currently supporting the School Food Trust to build evidence on good practice in early years settings, educating families about early childhood nutrition, this is not yet happening in a systematic way across the country. Statutory and voluntary guidance could be developed further to support this role for early years settings, and a larger evidence base on 'what works' in supporting parents to provide good early childhood nutrition would be valuable to inform local commissioners and early years settings. We will look at this in more detail in chapters 9 and 10.

### Overcoming financial barriers to good early childhood nutrition

The Nursery Milk Scheme currently reimburses the cost to UK early childcare settings of providing free milk to children aged under 5. This scheme funds childcare settings to provide one third of a pint of milk to each child who attends a childcare setting for 2 hours or more in one day.<sup>239</sup> This scheme has provided free milk to nursery school children since the 1940s<sup>240</sup> and is a universal offer as opposed to being targeted specifically at children from low-income families.

The Healthy Start voucher scheme was set up in 2006 to help pregnant women and families with children under 4 who are living on a low income to buy healthy foods and access free vitamin supplements. It replaced the previous Welfare Food Scheme, which provided access to infant formula and cow's milk. To be eligible for the scheme, the mother must be 10 weeks pregnant or parents must have a child aged under 4 years old. The scheme is then open to parents who are aged under 18 or receive benefits such as Income Support, Jobseeker's Allowance or Income-related Employment and Support Allowance.<sup>241</sup>

In 2012 the scheme currently supports beneficiaries in the following way:

- Pregnant women receive one Healthy Start voucher a week worth £3.10.
- Parents of babies under the age of 1 receive two vouchers a week worth a total of £6.20.
- Parents of children aged over 1 and under 4 receive one voucher a week worth £3.10.<sup>242</sup>

Vouchers are posted out to eligible parents every four weeks. They can be spent on milk, plain fresh or frozen fruit and vegetables (fruit and vegetables with nothing added), or infant formula milk in a wide variety of local shops and supermarkets, and with milkmen who have registered to take part in the scheme.

Every two months, eligible parents also receive vitamin coupons that they can exchange for Healthy Start vitamins (either tablets for pregnant women or vitamin drops for children). Local health authorities are responsible for making sure that the vitamins are available to parents in their local area.

The Institute of Education is currently conducting a qualitative evaluation of Healthy Start, which aims to explore the views of users and providers of the scheme in 13 primary care trust areas across England, with an aim of using the findings to improve the processes involved in delivering the scheme. It will involve interviews with women who are eligible and/or using the scheme, alongside health professionals and small retailers. It should be completed in December 2012.<sup>243</sup>

In the meantime, recent management information from the Department of Health suggests that the Healthy Start scheme is fairly successful in its intended goal of increasing access to healthy foods for low income families. Figures from December 2011 show that 88.6 per cent of the Healthy Start vouchers that were distributed to families in the UK were exchanged for foods during a four-week period. Approximately 550,000 households in the UK received these vouchers in the first quarter of 2012.

Another evaluation of the experiences of retailers accepting the vouchers has recently been published, which concluded that

the voucher part of the scheme is attractive and appealing to retailers and is working well, although a few simple steps can be made to improve the delivery of the scheme in store.<sup>244</sup> At present 15,000 retail businesses (across 30,000 retail outlets) are registered to accept Healthy Start vouchers. Every four weeks 2.6 million Healthy Start vouchers are issued to families across the UK. Around 91 per cent of these are spent and returned to the Healthy Start retailer reimbursement unit; 70 per cent of vouchers are used with supermarkets, the remainder are spent at pharmacies, independent shops, market stalls and on milk rounds.<sup>245</sup>

However, usage data demonstrates that the part of the scheme that provides access to free Healthy Start vitamin drops has presented more challenges in implementation than the food vouchers. Recent research identified issues with awareness of the scheme, supply and availability of the vitamin drops.<sup>246</sup> Management information from the Department of Health, provided by the Healthy Start team, shows that in the quarter ending in June 2012, only 3.5 per cent of the vouchers for children's vitamin drops in England were exchanged for vitamin drops, while 6.6 per cent of the vouchers for women's vitamins were taken up. These figures show a gradual improvement from a very low base, and the rate of uptake varies considerably between health trusts. The highest uptake for a trust in the quarter ending June 2012 was 23.1 per cent for children's vitamin drops and 51.5 per cent for women's vitamins.

Recent research may hold some of the answers to why the uptake of Healthy Start vitamin supplements remains low. A Feeding for Life Foundation survey of healthcare professionals found that 51 per cent are either not sure or are unaware of the UK health department's supplementation recommendations; 46 per cent of those who are aware of the recommendations do not know which vitamins are recommended daily; and 56 per cent do not discuss the importance of vitamin supplementation with all parents. In the Feeding for Life Foundation's survey of parents, 74 per cent were not aware of the Department of Health's recommendations for vitamin supplementation and 65 per cent of parents who were aware of the recommendation did not know

which vitamins are recommended daily.<sup>247</sup> Therefore, many parents receiving coupons for the Healthy Start vitamin drops may be unaware of the benefits of vitamin supplementation for their children and may therefore believe the vitamin drops to be unnecessary.

Qualitative research conducted on behalf of Tower Hamlets NHS with women in Tower Hamlets, including women from black and minority ethnic backgrounds, found that although there is some general understanding about healthy eating and vitamins among women in Tower Hamlets, there is a gap in their knowledge and understanding of dietary sources of Vitamin D (and other nutrients such as iron, folic acid and calcium) and of who is most at risk of Vitamin D deficiency. This study also found that access to information and advice about nutrition in pregnancy, motherhood and healthy eating for young children, as well as to the Healthy Start Scheme, is patchy across Tower Hamlets. Women's experiences varied depending on where they live or which health centre they attend.<sup>248</sup> This research suggests there is not just variation between health trusts in the quality of information and advice about vitamin D deficiency, but also considerable variation at a much more local level between individual healthcare providers.

## Regulation of the food industry

There is also a variety of ways in which the UK Government works with food manufacturers to promote good early childhood nutrition and restrict practices that might in some way undermine children's nutrition. The following sections describe some key elements of the current regulatory and policy framework.

### Foodstuffs intended for particular nutritional uses framework directive

In addition to the Infant Formula and Follow-on Formula Regulations, infant food manufacturers are also bound by the European Commission's framework directive on foods intended for particular nutritional uses, also known as PARNUT foods.

PARNUT foods include infant formula and follow-on formula, processed cereal-based foods and baby foods for infants and young children (aged from birth to 3), food intended to promote weight reduction, foods for special medical purposes and sports foods.<sup>249</sup>

### Infant formula and follow-on formula regulations

Most notably, law and policy in the UK prohibits advertising of infant formula to reduce the risk that breastfeeding might be undermined. Following a recommendation by the WHO's International Code of Marketing of Breast-milk Substitutes in 1981, the Infant Formula and Follow-on Formula Regulations introduced in the UK in 1995 banned the advertisement of infant formula for the first time (with the exception of professional or scientific publications that are not aimed at parents).<sup>250</sup> However, follow-on formula, which is distinguished from infant formula by the fact that it is suitable only for babies who are aged 6 months or older, may be advertised within certain statutory guidelines. Following the European Commission's 2006 Directive on infant formulae and follow-on formulae<sup>251</sup> the UK Government published updated Regulations in 2007, specifying the circumstances in which infant formula and follow-on formula may be sold and advertised.<sup>252</sup> These regulations contain a large number of provisions:

- Manufacturers must clearly state the age range that the infant formula product is suitable for on the front of the packaging.
- The packaging of infant formula must provide instructions for preparation, storage and disposal of the product.
- The labelling of infant formula must not include pictures or text that 'idealise' using infant formula.
- Infant formula may only be advertised in scientific publications or trade publications, where the intended readership is not the general public.
- The labelling of follow-on formula must clearly state the age range the product is suitable for.



- The labelling of infant formula and follow-on formula must enable consumers to make a clear distinction between the two kinds of product, to avoid the risk of confusion.
- When follow-on formula is advertised, the term ‘follow-on formula’ should have a prominent position in the advertisement, while making it clear that the product is only suitable for babies aged 6 months or older. Images used in the advertisement should only feature babies who are clearly aged over 6 months.<sup>253</sup>

### Processed cereal based foods and baby foods for infants and young children regulations

The specific regulations relating to foods for infants and young children (not including formula milk) are summarised in a 2006 European Commission directive.<sup>254</sup> This directive specifies rules on the composition of baby foods, allowable levels of pesticide residues and maximum levels of vitamins and minerals and other ingredients that products may contain. It also sets out how baby foods must be labelled. For example, the labelling of foods for infants and young children must show the energy values and principle nutrients contained in the food. According to this Directive, complementary foods may not be labelled as suitable for a child aged less than 4 months. It also requires that in statements about appropriate ages of use for the product must be appropriate in relation to ‘its composition, texture or other particular properties’.<sup>255</sup>

### The Baby Friendly Initiative

In addition to these legal restrictions on the promotion and advertising of infant formula and labeling of complementary foods, the Department of Health and NICE also recommend that maternity care providers implement initiatives to encourage breastfeeding, with Unicef’s Baby Friendly Initiative recommended as a ‘minimum standard’.<sup>256</sup> The Department of Health has invested resources in supporting primary care trusts to attain Baby Friendly Initiative accreditation.<sup>257</sup> The Baby Friendly Initiative includes the following requirement for maternity settings:

*There must be no advertising or promotion of breastmilk substitutes, bottles teats and dummies within or by the facility/Trust, either to the general public or to staff. All antenatal and postnatal services must be free of such promotion and these items must not be sold on the facility's premises or by its staff. In the hospital, supplies of infant formula, bottles and teats must be paid for in full.*<sup>258</sup>

The Baby Friendly Initiative guide for maternity settings explains further that they must ensure that their practices are in line with the WHO's 1981 International Code of Marketing of Breastmilk Substitutes, which is more stringent than UK regulations. Therefore, while this code has not been included in UK law, the Department of Health's promotion of the Baby Friendly Initiative in maternity settings is indirectly encouraging these services to subscribe to the principles set out in the code.

### Restrictions on advertising fast foods

In addition to these legal and policy provisions relating to formula milk and complementary foods, there are also restrictions on the advertising of junk food to children on television, which were brought in by Ofcom in April 2007.<sup>259</sup> Subsequently, 'these rules were supplemented with self-regulatory rules for non-broadcast advertising of food to children, and extended to advertising in digital media in March 2011'.<sup>260</sup>

### The Public Health Responsibility Deal

Finally, the Public Health Responsibility Deal, launched in March 2011, has sought to gain businesses' support with improving public health and tackling obesity through a variety of voluntary measures, including a series of food pledges that businesses are encouraged to sign up to. These include:

- providing calorie information for food and non-alcoholic drink for customers in out-of-home settings
- reducing the salt content in foods to help achieve the public health goal that individuals do not consume more than 6g of salt each day
- removing artificial trans fats from products

While these measures are not specifically aimed at young children, it is likely that they will benefit young children as well as adults, particularly those whose diets include large quantities of processed foods.

These various initiatives share a common theme of the Government seeking to restrain the food industry from behaving in a way that might compromise young children's diets.

However, there is little evidence of the Government working constructively in partnership with the infant food industry to develop consistent messaging on infant and toddler nutrition from weaning onwards, and to identify effective channels for communicating key messages about early childhood nutrition to parents. This report considers opportunities for the Government to work more proactively with the food industry and retailers in chapter 10.

The next chapter will explore how these various policy initiatives are experienced by parents, and identify where parents feel that they need better information or support. Chapter 9 will review current evidence on what works in improving early childhood nutrition. Chapter 10 will then draw on these findings to identify gaps and challenges in current government policy and make recommendations for strengthening the policy framework on early childhood nutrition.



## 8 Parents' perspectives on the quality of advice and support available to them

This chapter presents the findings from research workshops with parents and the Bounty Word of Mum survey, both of which explored parents' views on the quality of advice and support that is currently available to parents through universal health and early years services.

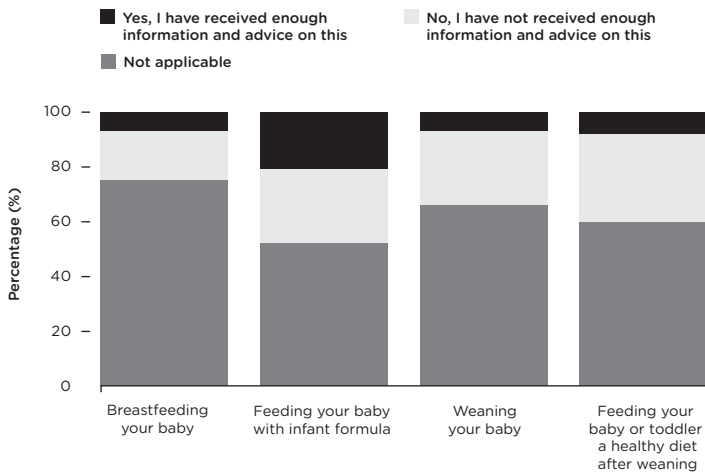
### Parents' satisfaction with information and advice on early childhood nutrition

In the Bounty Word of Mum survey we asked over 1,800 mothers responding to the survey whether they had received enough information and advice on breastfeeding, formula feeding, weaning and feeding their baby or toddler a healthy diet following weaning (figure 16). Their responses showed the following:

- 75 per cent of mothers felt they had received enough information on breastfeeding, with just 18 per cent feeling they did not receive enough information.
- 27 per cent of mothers felt they did not have enough information on formula feeding.
- 27 per cent of mothers felt they did not have enough information on weaning.
- 32 per cent of mothers felt they needed more information on feeding their baby or toddler a healthy diet once they had introduced solid food.

This suggests that information and advice on healthy eating for toddlers is currently the biggest gap in support with

Figure 16 **Mothers' views on whether they received enough information and advice on feeding**

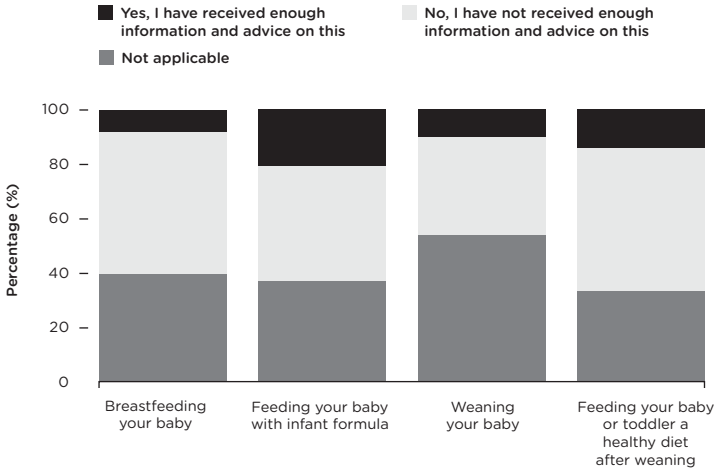


Source: Bounty Word of Mum survey 2012

early childhood nutrition, although each of these areas clearly needs to be improved.

Mothers were also asked whether they found the information they received on these subjects confusing or contradictory (figure 17). Almost two in five mothers said they had found advice on breastfeeding or formula feeding confusing or contradictory and more than half of mothers had found weaning advice confusing. A third of mothers had also found advice on feeding babies and toddlers a healthy diet confusing or contradictory.

We know from the previous set of questions that mothers were most likely to feel that they did not receive enough information on feeding toddlers a healthy diet. Therefore the lower proportion of mothers finding advice in this area contradictory may in fact reflect the overall lack of advice. In all

Figure 17 **Advice on feeding found confusing or contradictory**

Source: Bounty Word of Mum survey 2012

four areas – breastfeeding, formula feeding, weaning and toddler nutrition – the high proportion of mothers (between one-third and half) feeling that the nutritional advice they received was confusing or contradictory should be a concern to policymakers.

### Experiences with infant feeding support services

Parents' experiences of infant feeding support services varied a great deal between the four research workshops. For a start, mothers' support needs varied hugely; some felt that they had needed a great deal of support, while others had found of the experience of initiating breastfeeding or formula feeding straightforward. The mothers' experiences also varied in the extent to which they had been able to access support if they needed it.

### Not enough help

Some mothers who experienced difficulties with breastfeeding felt they had not received enough support from maternity or community services. For example, one mother in the second research workshop suggested that it would have been helpful to receive more information about breastfeeding before her baby's birth:

*I started going to the Sure Start centre when he was only about 3 or 4 weeks old. And there was a lot of support for afterwards but they don't seem to have the support groups beforehand. It's only once they're born... The only time I found out about it was in one of the antenatal classes. All of the breastfeeding support classes were all post-birth.*

Another mother commented that she could have benefited from more consistent breastfeeding support following her son's birth:

*As soon as my son was born, I would've liked more help with the breastfeeding. It took about three days for me to get a good latch and even after that it was still hard going. I've had three or four health visitors since he was born and you never know who you're going to talk to.*

A mother in the third research workshop explained that she felt the support she needed had come too late after her daughter's birth:

*That's where I think they failed me. Because when I was pregnant with my daughter I felt very pressured to breastfeed. Then... I think she was born at 9.54 and I didn't sit down to feed her until late that night. I'd asked around all day, 'can someone show me what to do', and they said 'we'll be there in a minute'. And it got to that night and I said 'can you show us what to do?', and she was crying and she wouldn't latch on... So I then bottle fed her.*

This mother was later given an electric breast pump by midwives to enable her to express milk, but she found this process complicated and stressful so she later reverted to formula



feeding. This mother felt she had been let down, suggesting that if she had received the right support early enough following her daughter's birth, she might have been able to breastfeed.

A mother in the third workshop explained that her physical impairment was initially a barrier to initiating breastfeeding:

*They couldn't help me because I couldn't hold the baby in my hands so I had to figure it out myself. Their reaction was 'oh, I don't know, we haven't had this before'. So I think... if you go away from the norm, it's a bit like 'oh, well I don't know what to do'. I exclusively breastfed both of my children but I was extremely sore for quite a long time.*

This mother was critical of the services she came into contact with, as she felt that they were unable to offer her breastfeeding support that accommodated her impairment:

*I didn't find a lot of professionals very helpful. Either the health visitor or the hospital when I was having problems due to my disability.*

Two older mothers who took part in the research workshops, whose youngest children were now of school age, commented that there had been little breastfeeding support available when their children were born:

*I can say with my first two. I didn't breastfeed the first two because the first one was premature and fed for the first five weeks with a tube up her, and the second one wasn't latching on properly. At that time when I was having my first two, there wasn't anyone there who was giving that information.*

*I've obviously got different experiences because I've got older children. [The youngest was aged 6.] And certainly, when we were young, back in those days there wasn't anything that was pushed in relation to breastfeeding etc. So I bottle fed all of my three older children without a thought of breastfeeding. When I was pregnant with my last little girl who's 6, I really wanted to breastfeed. But no one... there was information in the hospitals and stuff but there wasn't anybody to encourage you and stuff like that, nobody to discuss it with. And I did try to breastfeed her and I lasted a week.*

These mothers were aware that breastfeeding support services had improved since their own children were young, but their comments highlight the vital role of maternity services in providing breastfeeding support. They also emphasise that perinatal support services do not assume that mothers with older children are familiar and confident with breastfeeding.

### High quality breastfeeding support

Although some mothers who participated in our research workshops were dissatisfied with breastfeeding support services, others felt that they had received excellent support when establishing breastfeeding in the first few months. Both of the mothers who particularly emphasised the high quality support they had received were in the third workshop in Gateshead. One mother commented:

*After I had my son I went to 'bosom buddies', which was a breastfeeding support group and that was an amazing help... It's at Sure Start. There's a breastfeeding coordinator and there are people who are trained to do La Leche... It's exclusive breastfeeders, the crème de la crème of breastfeeders.*

Another mother who felt that she received excellent support from the midwives to express breast milk when her son was born prematurely said:

*My first son was very small when he was born. He was in special care and I was poorly, I'd had HELLP syndrome so I was quite ill. They were very supportive at the hospital, the QE [Queen Elizabeth Hospital], and they expressed milk and syringed it in and all of this palaver. And then when I went home he just wouldn't feed for two weeks and I was waking up every two hours. But the midwives were brilliant. I didn't feel pressured. My mum moved in to help me and even she was saying 'I don't know if we're going to be able to do this', but we did.*

### 'Pressure' to breastfeed from health professionals

Some of the mothers who took part in the research workshops complained that they had received unwelcome pressure to breastfeed from health professionals. This was particularly mentioned as being problematic in the first and second research workshops. In the first workshop a mother commented:

*All the health visitor was interested in was that I was expressing [rather than breastfeeding]. I managed to speak to a breastfeeding consultant. I was in another borough, and she told me that the best time to do it was 4 o'clock in the morning, to do with the milk, so I was lucky there, but it was only after I said I was having problems. And I did feel that there was a bit of a pressure on me.*

In the second research workshop, the mothers of younger children agreed that health services had directed a lot of pressure on them to breastfeed. One mother particularly discussed this experience:

*Did you go to the midwifery classes? Because one of the whole sessions there was on breastfeeding. But I think that because I'd seen them both times I was a bit put off and I thought that they were a bit full-on. I thought they were a bit pushy. [Another mother chimed in at this point and said 'yes, pushy'.] I was a bit taken aback by it all. It was with the midwives at the hospital. I think there were four classes and one of them was all about that... Even when I had [my baby] as well, they were really, like saying, 'you've really got to... you've got to breastfeed' and I was like, 'I haven't got to do anything. No.' [Several other mothers agreed and nodded their heads.]*

### Unwelcome encouragement to formula feed

In contrast, two mothers in the third research workshop mentioned that they had felt pressurised to introduce formula, when they wanted to exclusively breastfeed. One commented:

*I know some people said that health visitors pressured them [to breastfeed], but my health visitor was the opposite. When my baby was 21 days old and he came out for his check and he'd only put on two ounces, my health visitor said 'you're not feeding him enough, you should start giving him*

*formula' – and I felt like a massive failure... So that was really hard for me and it made me think, am I doing the right thing?... But now I know that's completely natural and there are times when they don't put on loads of weight.*

As mentioned above, another mother was encouraged to introduce formula because her son experienced complications following birth and the consultants were concerned about his development. However, with the support of her aunt, she continued to exclusively breastfeed.

### Parents' experience of weaning support services

The parents' experiences with weaning support services varied a great deal between the four research workshops. In one of them, most of the mothers had been invited to attend workshops at their local children's centre that gave specific advice about weaning. In the other three research workshops, parents had mainly received some advice from health visitors about *when* to wean their babies but not on *how* to wean their babies.

### Insufficient professional support with weaning

Several mothers in the first research workshop commented that they did not feel they had received sufficient support during the process of weaning their babies. One mother said that as the people around her were unable to give her the advice she needed, she had looked for leaflets available at GP surgeries:

*I used to go to the GP surgery and pick up leaflets, because the actual leaflets do have quite a lot of information on things like that. So if there was something that my mum couldn't answer, or a member of the family, or the doctor, then I'd try to pick up information from different places, or pick them up in the area, and they'd have a lot of answers.*

Another mother in the first research workshop commented:

*It would be nice – you know when you go to the website or Google and you put in, if you want someone to talk to verbally, face to face, it would be good. Someone like a health visitor.*

She went on:

*When I tried to contact my health visitor it became hard to get hold of her for starters. Then it became that I didn't feel like she understood where I was coming from and I felt like they thought like I was being a paranoid mother and you just think 'all I want is some advice, face to face, just a general chat to get some of my problems out, if I need to'.*

Other parents participating in the first research workshop told us that they had received no professional advice, instead simply asking 'mum' or 'friends', who are similar ages, who are older, or younger or whatever, to see what they were doing. None of the mothers in the first research workshop were aware of any specific services aimed at providing advice on weaning.

In the second research workshop, a mother whose youngest child was now nine commented:

*I remember by the time I had my third child, we had the children's centres – Sure Start – by then. So that was a real help because they were there in the background to help and motivate and help you meet other parents and mums etc.*

However, while Sure Start was available by the time of her third child's birth, she observed on the subject of weaning:

*I felt there was nobody in particular that you could go to about things like that. I know you have health visitors but there was no one specific for it. It was just other parents you spoke to.*

Another mother in the second research workshop felt that she had missed out on specific advice on weaning and toddler nutrition after funding cuts:

*Even in the Sure Start centres there were a couple of cookery courses available. But I didn't get to go on one. You were advised to go once your child was over a certain age, but then they cut the funding. They constantly had people coming in and the parents were always asking for it, but that's gone because there's no funding.*

The mothers in this research workshop agreed that very little specific weaning advice had been available to them when it was needed:

*Even a booklet... wouldn't go amiss. Like '10 top tips for recipes' or something.*

When these mothers were asked what kind of support on weaning they might have liked, they replied: 'Something like a workshop or even a leaflet. I don't know, just something! Anything is better than nothing.' One mother suggested:

*Even on the fruit and veg aisle [at the supermarket], just a leaflet on how to mash carrot and turnip and give it to your baby... if there was a small sheet just to offer a guide that could help.*

Another mother proposed a role for trained peer supporters:

*They have all of the breast buddies and things like that in place now to help people with breastfeeding. There should be something like that for weaning. I think it's best if people can get help in a children's centre, in the community.*

One mother whose youngest child was now 6 also thought that the best environment for weaning advice would be a community setting rather than a healthcare setting: 'I think sometimes people going to the GP feel that they're being judged. But if you come to a place like a Sure Start centre, it's more community based.' However, she also observed that children's centres often fail to meet the needs of parents with jobs:

*I also have my own bug-bear with Sure Start centres because I think they're absolutely fantastic but they don't cater for working parents. Because everything is run Monday–Friday, 9–5 and I can never make it.*

Mothers in the fourth research workshop also agreed that they would have liked to receive more support with the weaning process. One mother commented:

*I think there should be more information... I had help, but some people don't get help with it or can't find or don't know where to look. So it should be put out there a bit more.*

When asked how they would like to receive information, one mother suggested that she would benefit from 'more leaflets being posted out'. However, when they were asked if they preferred to read information for themselves, or have a training session, several mothers replied, 'Yeah, speaking to someone about it is easier.' They also liked the idea of receiving support at a children's centre.

In the third research workshop, one of the mothers argued that more support should be available for parents experiencing weaning problems, which can be distressing. She particularly highlighted the problem of inconsistent support from health visitors:

*With the health visitor, in a six-week period, I never saw the same one... Especially with your second one, you don't have a lot of time with them. Then you get to the age when you start weaning and you just don't see anybody. I can't remember with any of mine having contact with health visitors after they were six months.*

This mother told us that with her second son she experienced problems with weaning that were very worrying: 'He must have been about 7 months old and he just started projectile vomiting everywhere and he couldn't keep anything down and this was over a six-hour period.' However, she felt that when she contacted her health visitor, 'I was made to feel like a nuisance.'

She suggested, 'Once you start weaning, it's like they don't want to know you because they're so busy with the newborns.'

Another mother in the third research workshop commented, 'I didn't feel like I saw any health visitor once I'd started to wean. And I think that's an important time.'

### Non-professional support

Although many of the mothers consulted felt that they would have liked more professional support, some of them actively avoided support from healthcare professionals. One mother in the first research workshop said that as she was going against official guidance in weaning before 6 months, she felt that she couldn't ask a health professional for advice about weaning:

*I didn't really go to the health visitor after that for advice because they'd sort of told me off... I didn't want to tell them any more, because I felt like I'd sort of broken the law of six months only, sort of thing. But as I say, she was really ready at that time to have solid food.*

As a result, this mother preferred to seek information from the internet. A mother in the third research workshop made a similar comment:

*As I'd had a bad experience with breastfeeding with my health visitor, I didn't really want to speak to my health visitor about anything because I didn't really respect his opinion. So I was lucky that I did have friends and family I could talk to.*

In the fourth research workshop, the professional input on weaning that the mothers had received from their health visitors was also mainly limited to the correct age for introducing solid food, rather than discussions around appropriate weaning foods. One of the mothers explained:

*When I went and got a meal and I told her that I were giving two meals a day she was like 'she's only 5½ months, you have to wait til she's 6 months'. So I just carried on anyway.*



In the third workshop group some mothers had had access to Sure Start weaning workshops, which took them through the process of introducing solid foods. However, most of the mothers said that their advice on weaning had mainly come from informal sources, such as friends and family and with some supplementary information from the internet or books.

### Inconsistent information

In the third research workshop, one mother highlighted the challenges for parents who receive conflicting information from health professionals:

*I also find that you really get conflicting information from health visitors and everyone. For me, I was getting conflicting information from my health visitor compared to the paediatrician [and] the dietician about what diet they should have. They always say you shouldn't wean them until four to six months. When they said to put my son on baby rice at 10 weeks, I said 'won't it damage his insides?'... They said 'no, what are you talking about?'*

*I said 'I don't want to sound rude but I'm hearing different things off different people, so I'm just going to do what I want to do because I'm getting told different things left, right and centre, and I don't want to follow any of this.' I put him on the baby breakfasts and they said 'no, just baby rice'. But then I changed it anyway.*

As this comment suggests, this mother's confusion ultimately led to her ignoring the advice given to her by health professionals.

As discussed previously, the mothers in the fourth research workshop also discussed the inconsistent advice they had received from health visitors on appropriate weaning ages, which had ranged from 4 months to 6 months. Ultimately, the mothers in this workshop group placed more trust in baby food packaging than in the advice of healthcare professionals: 'The jars, they say 4 month plus on them don't they!'

### Inappropriate timing of advice

Three mothers in the fourth workshop group had attended specific weaning workshops on offer at their local children's centre, but they felt that the timing of these workshops was not always right: one mother said the advice had come 'too late', once she had already started weaning her son. Another felt that she had attended a workshop 'too soon', so that she had forgotten the advice by the time it was relevant. However, a third mother commented, 'Mine was about right, it was just a few weeks before I started.' The mother who felt the advice had come too soon did not feel that there were enough opportunities to attend another course or seek information subsequently.

One of the mothers in the third research workshop suggested,

*I think they could be more proactive about it [advice on weaning] because it's like all of a sudden once they get to 3 months, they start mentioning weaning... So I think it is a bit of a surprise to people and they could be more proactive and give you more information and offer more classes. A lot of people can't cook!*

### Experience with services supporting good toddler nutrition

In all four research workshops, parents had less to say on the subject of support with toddler nutrition than when they were discussing infant feeding and weaning. This appeared to be because there was very little advice or support available that was targeted towards the needs of toddlers. One mother in the third workshop commented:

*Unless you're into a particular system if you have dietary problems with your children, you are really just left to your own devices and there is very little guidance [at the] toddler age. I feel that is where the gap is.*

As parents' comments in chapters 5 and 6 have shown, many of them worried about subjects such as fussy eating and appropriate portion sizes for toddlers, but most parents did not

feel there was anywhere they could go to obtain support and advice about healthy eating for children of this age group.

### Health services

As discussed above, a number of parents were frustrated that health visitors and GPs didn't take fussy eating seriously enough or provide enough advice on how to cope with it. In the first research workshop, a mother commented, 'It's kind of just advertised by health visitors as just a stage so fussy eating isn't something where you should go to see someone about it.'

### Children's centres

Parents were generally more positive about the support they had received at children's centres, where this was available. One mother who took part in the second research workshop said:

*I used to attend the Sure Start centre three times a week and they used to bring nutritional people in and they had cookery courses and stuff like that. They gave out good information. A lot of people were only buying branded baby porridge but they told us about Tesco and Asda's own brand and when you looked at the label, it had less salt, less sugar... It was actually healthier for you so we learnt quite a lot and saved a lot of money as well so that was really good.*

The parents who took part in the fourth research workshop said that they had recently attended a class at their local children's centre called 'Cooking healthy for babies'. One mother explained that this session had taught them about 'healthy eating for babies, and cooking... Last time was good. Last time we ate it all, didn't we... We did, we ate all the [chicken] nuggets.' Another mother commented, 'Yeah, she does tell us stuff about what babies can't have and what they can. But it's just eating it and stuff.'

### Healthy weight initiatives

One mother in the second research workshop, whose daughter was now 6, described a positive experience of an initiative to help families whose toddlers and young children were overweight:

*We got a letter from our school about 18 months ago saying she was overweight... They gave us a leaflet saying you could apply to go to this club, so there was follow-through. But the issue was that not very many parents wanted to go along. But we went and it was absolutely fantastic... It was on Saturdays for about three hours... They'd split us up so the parents were in a classroom while the kids did some exercise activity. Then after that they'd reverse it and the children would have an educational session and the parents would do some physical games like basketball. We loved it! It was called Carnegie or something... My little girl was 4 at the time.*

This mother explained that while she had found this course to be a very positive experience, the course had low take-up among parents because of the stigma surrounding overweight and obesity:

*Now lots of parents in the school at the time just went absolutely ballistic... Although the group was fabulous, there was a stigma attached to it. They tried to run it again at my daughter's school but they couldn't get anyone to go along.*

This mother suggested,

*I think that we need more education like the course that I went on... There is no reason why it shouldn't be part of the school curriculum from an early age, from reception, to do some activities on healthy eating that don't segregate the children. And it should be done several times a year so that it's not forgotten.*

Another mother in the same research workshop suggested;

*They should have something in the evening on healthy eating for families for parents who are working so that it's an educational thing as well as something you can do as a family.*

## Advice on vitamin supplements

Mothers who responded to our parents' survey were also asked about vitamin supplements. In its key advice document for parents, *Birth to Five*, the Department of Health currently makes the following recommendation:

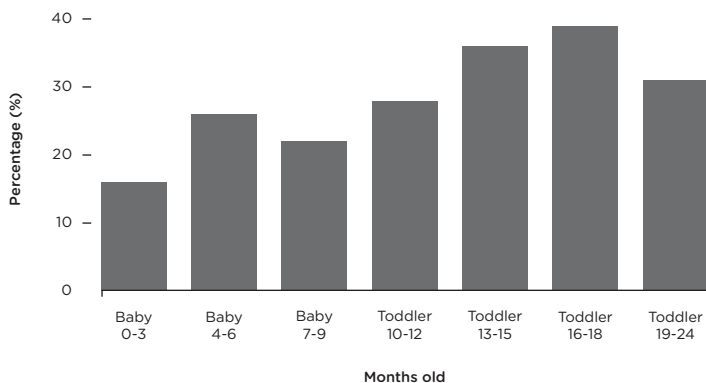
*If you are breastfeeding your baby, you should take a vitamin D... If your baby is six months or older, and/or is drinking less than 500ml (1 pint) of formula milk per day, give them vitamin drops containing vitamins A, C and D. It's especially important to give vitamin drops to children who are fussy about what they eat, children living in northern areas of the UK and those of Asian, African and Middle Eastern origin.*<sup>261</sup>

This document also recommends that mothers who did not take a vitamin D supplement during pregnancy should give their baby vitamin drops from the age of 1 month and continue until the child is 5.<sup>262</sup> In our survey we asked mothers, 'Have you ever been advised to give your youngest baby or toddler a vitamin supplement?' The aim of this question is to identify the extent to which parents are aware of this official recommendation on vitamin D supplementation.

Almost three-quarters (73 per cent) of mothers responding to the survey said that they *had not* been advised to give a vitamin supplement to their baby or toddler. The proportion of mothers who said they *had* received this advice varied according to the age of the child (figure 18) and according to the mother's social grade (table 5). This suggests that women from higher social grades (who are likely to be more educated) are better able to pick up on public health messages. The fact that more women classified in social grade DE (which includes people whose main income is from state benefits) have been advised to give their children vitamin supplements than women in social grades C1 and C2 may be explained by the greater likelihood that these mothers will be entitled to receive free Healthy Start vitamin drops.<sup>263</sup>

These findings suggest that the majority of mothers of children aged under 2 may not be aware of the government recommendations on giving vitamin supplements to young children, as nearly three-quarters of mothers do not remember

Figure 18 **Proportion of mothers advised to give vitamin supplements, by age of child**



receiving this advice. A survey of parents with young children conducted by the Feeding for Life Foundation in 2011 also supports this conclusion: 66 per cent of parents said they had not received any advice about vitamin supplementation from a healthcare professional, 74 per cent of parents were not aware of the Department of Health's recommendations on vitamin supplementation and 78 per cent of parents did not feel they had received enough information on supplementation.<sup>264</sup> These findings suggest there is a need for a much greater emphasis in health and early years policy on communicating the benefits of vitamin supplementation to parents.

### Summary of key issues

The new survey evidence presented in this chapter demonstrated that between a quarter and a third of mothers think they did not receive enough information and advice on formula feeding (27 per cent), weaning (27 per cent) and toddler nutrition (32 per cent). Just under one-fifth (18 per cent) of mothers think they did not receive enough information on breastfeeding.

Table 5 **Proportion of mothers advised to give vitamin supplements, by social grade**

AB	C1	C2	DE
31%	25%	22%	27%

More than a third of mothers thought that the advice they did receive on each of these subjects was confusing and contradictory. In this case, weaning was the most problematic area, with 54 per cent of mothers finding advice on this subject to be confusing.

The conversations with parents that took place in our in-depth research workshops demonstrated the following:

- Mothers' experiences of breastfeeding support services varied hugely. Some mothers felt they had not been given enough help while other mothers were very satisfied with the help they'd received.
- However, the support that was given was not always welcome. Some mothers experienced an unwelcome level of pressure to breastfeed, while several others mentioned that they had been encouraged to use infant formula when they did not wish to. Each of these experiences damaged mothers' relationships with healthcare professionals.
- Experiences with introducing solid food also varied hugely. Most mothers had very little professional support with weaning and relied mainly on informal support or information they found for themselves. However, mothers in one workshop group had been invited to attend professional weaning workshops at a children's centre.
- A great many of the parents taking part in the workshops emphasised that the advice on weaning they had been given was often contradictory and inconsistent.
- Most mothers agreed that better access to authoritative, consistent advice on weaning would be helpful for parents and

for most mothers the preferred location for receiving such advice was a children's centre.

- Parents felt there was even less support and advice available on toddler nutrition than there was for weaning, as health visitors focused more time on supporting parents with babies. One mother commented, 'you are really just left to your own devices'.

Therefore, while some parents wished to receive more support with nutrition in all three areas, weaning and toddler nutrition were particularly identified as areas where there are gaps in the support that is currently available. It was also clear from the survey that messages about government recommendations on vitamin supplementation are not being picked up by parents. Nearly three-quarters (73 per cent) of mothers responding to the survey said that they *had not* been advised to give a vitamin supplement to their baby or toddler.



## 9 Evidence-based approaches to providing good early childhood nutrition

Before we make recommendations for how we can provide better support to parents in chapter 10, this chapter will briefly review existing evidence on *what works* to improve early childhood nutrition. This is divided into three key areas:

- increasing rates of breastfeeding
- introducing solid foods and supporting healthy feeding behaviours
- tackling early childhood obesity

### Increasing rates of breastfeeding

Antenatal breastfeeding education has been found important to increase breastfeeding initiation. Health education and peer support interventions can both result in some improvements in the number of women beginning to breastfeed.<sup>265</sup> There is also evidence that antenatal breastfeeding education can play a role in prolonging breastfeeding duration.<sup>266</sup> Three key evidence-based initiatives are currently being used in the UK to increase breastfeeding rates. These are the Unicef Baby Friendly Initiative, the Family Nurse Partnership and various breastfeeding peer-support initiatives.

#### The Unicef Baby Friendly Initiative

A number of these have been brought together into a comprehensive programme called the Unicef Baby Friendly Initiative. Some key elements of this programme are summarised

in box 2. In the UK, the proportion of babies breastfed at birth increases by more than 10 per cent on average over four years when hospitals implement the Baby Friendly Initiative programme.<sup>267</sup>

In the UK there were 87 maternity hospitals with full Baby Friendly accreditation as of August 2012;<sup>268</sup> 106 of 152 PCTs have some form of Baby Friendly Initiative accreditation while 46 still do not.<sup>269</sup>

Box 2     **Baby Friendly Initiative ‘Ten Steps’ for maternity services**

- 1 *Have a written breastfeeding policy that is routinely communicated to all healthcare staff.*
- 2 *Train all healthcare staff in the skills necessary to implement the breastfeeding policy.*
- 3 *Inform all pregnant women about the benefits and management of breastfeeding.*
- 4 *Help mothers initiate breastfeeding soon after birth.*
- 5 *Show mothers how to breastfeed and how to maintain lactation even if they are separated from their babies.*
- 6 *Give newborn infants no food or drink other than breast milk, unless medically indicated.*
- 7 *Practice rooming-in, allowing mothers and infants to remain together 24 hours a day.*
- 8 *Encourage breastfeeding on demand.*
- 9 *Give no artificial teats or dummies to breastfeeding infants.*
- 10 *Identify sources of national and local support for breastfeeding and ensure that mothers know how to access them before discharge from hospital.*

### The Family Nurse Partnership

The Family Nurse Partnership – outlined in more detail previously in chapter 7 – is an intensive health visiting programme for young first-time mothers. Originally developed in the USA, in the UK it has been implemented in ten pilot sites

from 2007, and a randomised controlled trial of 18 sites will report in 2013. The outcomes that are being measured in this programme include smoking during pregnancy, breastfeeding, admissions to hospital for injuries and ingestions, further pregnancies, and child development at age 2.

The evaluation of the UK Family Nurse Partnership pilot found that the rate of mothers participating in the Partnership who first initiated breastfeeding, who then went on to continue breastfeeding until at least 6 weeks, compared well with mothers nationally who were from a similar socioeconomic background. In the Family Nurse Partnership, 63 per cent of mothers initiated breastfeeding and 36 per cent of these mothers were still breastfeeding at 6 weeks (or 23 per cent of all mothers participating in the programme);<sup>270</sup> 10 per cent of the mothers included in the Family Nurse Partnership evaluation were still breastfeeding at 6 months.<sup>271</sup> However, these results varied between sites (for example breastfeeding initiation rates varied between 38 per cent in one site and 86 per cent in another) and also according to demographic factors such as the mother's age and ethnicity.<sup>272</sup> Data from the trial will provide more robust evidence of the Family Nurse Partnership's success in increasing breastfeeding rates among young mothers.

### Breastfeeding peer support initiatives

Mothers' peer networks have traditionally had an important role in supporting breastfeeding,<sup>273</sup> therefore peer support programmes have been developed where community members (mothers who have breastfed) are trained to provide support to other breastfeeding mothers. The aim of these programmes is for mothers who are unfamiliar with breastfeeding to gain a sense of normality from the sessions, and for the sessions to tackle confidence issues or practical difficulties that may hinder mothers. Peer support can involve one-to-one mentoring, over the phone or by telephone, or group meetings with mothers and a trained supporter. Since their only aim is to promote breastfeeding they can provide more intensive support than that offered by health professionals, and family nurses and health

visitors often refer families they work with to these groups. NICE recommend commissioning breastfeeding peer support programmes as part of a wider breastfeeding strategy.<sup>274</sup> Although popular, and now fairly widely available, the efficacy of peer support networks in the UK has been debated and found to be limited to only some mothers.<sup>275</sup> An evaluation of UK peer support group pilots run by the NCT found that mothers believed the support to be important and beneficial in giving them the confidence to continue breastfeeding.<sup>276</sup>

However, reviewing the more robust evidence of individual one-on-one peer support, a recent systematic review concluded:

*Although peer support interventions increase breastfeeding continuation in low or middle income countries, especially exclusive breastfeeding, this does not seem to apply in high income countries, particularly the United Kingdom, where breastfeeding support is part of routine postnatal healthcare.<sup>277</sup>*

Nonetheless, the authors noted that in addition to the general level of postnatal support in the UK, the UK trials may have been ineffective because of their low level of intensity (less than five contacts were planned) compared with the trials in other countries, and concluded, '[We] do not know whether more intensive interventions in the United Kingdom might be effective, but they would necessarily be more costly if the peers were paid.'<sup>278</sup> Older reviews that do not take account of developed or less developed country settings also noted that peer support only seemed effective in increasing initiation rates for those who had the intention to breastfeed.

Surveying the effectiveness of all types of support for breastfeeding, a 2012 review by Renfrew et al concluded that breastfeeding support is important 'to increase the duration and exclusivity of breastfeeding', while this support should be combined with interventions aimed at encouraging more mothers to initiate breastfeeding in the first place. The authors further argued that support should be offered in a structured manner, so that mothers 'can predict that support will be available', and it is not incumbent on the mothers to request

support. The study suggested that this support could be provided by professionals, peer supporters or a combination of informal and formal supporters.<sup>279</sup>

### Introducing solid foods and supporting healthy feeding behaviours

In our review of the literature for this research, we did not identify any specific evidence-based programmes (robustly evaluated by a randomised controlled trial) that support parents to introduce solid foods to their babies in a way that will promote healthy preferences and broad acceptance of a variety of foods. This is a deficit that will need to be addressed, as the increasing policy focus on the early years, combined with a growing awareness of the public health risk posed by child obesity, is likely to lead to increasing demand from health commissioners for evidence-based projects and services that can demonstrate their effectiveness in *preventing* poor nutrition. The few evidence-based interventions for pre-school children that we did identify tended to be focused on responding to and addressing obesity in pre-school children, as opposed to specifically preventing poor nutrition in the early years.

However, while we did not identify any evidence-based nutrition-focused preventative programmes we did identify a variety of evidence in the literature, based on numerous academic studies, about ‘what works’ in supporting good infant and toddler nutrition from the introduction of solid food onwards. The Infant and Toddler Forum (a nutritional charity supported with funding from Danone UK) has developed a factsheet for parents and practitioners called ‘Ten steps for healthy toddlers’, which draws on many of these principles.<sup>280</sup> This factsheet is endorsed by a variety of organisations, including the National Obesity Forum, the Pre-School Learning Alliance and the National Day Nurseries Association, suggesting that it is likely to be widely used by practitioners in early years settings (see the case study in chapter 10). Although early results are promising, this information tool has not yet received a formal independent evaluation.

Here we will consider seven strategies for introducing solid food and supporting healthy feeding behaviours, which are informed by a variety of longitudinal research, small-scale studies and randomised controlled trials:

- introducing a variety of healthy foods
- practising responsive feeding
- offering age-appropriate portion sizes
- modelling healthy eating behaviours
- regular mealtimes
- adopting an authoritative parenting style
- managing fussy eating

Each of these feeding behaviours – which are suitable for infants and toddlers from the introduction of solid food onwards – would also need to be coupled with age-appropriate information on the nutritional needs of young children. This information is provided in the Department of Health’s *Birth to Five* or the School Food Trust’s *Voluntary Food and Drink Guidelines for Early Years Settings in England*.<sup>281</sup> The next section, which explores healthy eating behaviours, draws particularly on a document put together by Mary Rudolf for the Department of Health called *Tackling Obesity Through the Healthy Child Programme*, which presents a variety of sources of evidence.<sup>282</sup>

### Introducing a variety of healthy foods

In its key early years policy document *Birth to Five*, the Department of Health states, ‘Introducing a good variety of healthy foods from the start will help lay the foundations for healthy growth and development.’<sup>283</sup> The rationale for this advice is that babies tend to develop ‘neophobia’ (causing the rejection of new foods) at 12–15 months.<sup>284</sup> Therefore, the weaning period when solid foods are first introduced (usually at between 4 and 6 months) is an important opportunity to introduce babies to a variety of tastes and textures (including fruit and vegetables) before the neophobic period begins.

Longitudinal analysis of the Avon Longitudinal Study of Parents and Children by Coulthard et al lends weight to this ‘window of opportunity’ thesis. The study divided children into three groups according to when they were first introduced to ‘lumpy’ solids (before 6 months, between 6 and 9 months or after 9 months). It found:

*Children introduced to lumpy solids after the age of 9 months ate less of many of the food groups at seven years, including all 10 categories of fruit and vegetables, than those introduced to lumpy foods between 6–9 months ( $P < 0.05$ – $0.001$ ). In addition, they were reported as having significantly more feeding problems at seven years.<sup>285</sup>*

The authors conclude that it is important that the introduction of lumpy foods is not delayed until after 9 months, to increase the likelihood that children will accept a wide variety of fruits and vegetables at older ages.

Research by Wardle et al has also shown that repeated exposure to new foods is important to broaden young children’s preferences; in a trial with pre-school children, the children were more likely to enjoy eating a vegetable if they had been offered it daily for two weeks than children who received an information leaflet.<sup>286</sup> In a further cluster-randomised trial conducted by Cooke et al in the UK, children’s acceptance of a disliked vegetable, following 12 consecutive daily taste exposures, was compared between three intervention groups (tasting the vegetable plus a tangible reward, tasting the vegetable plus praise, and just tasting the vegetable) and a control group whose participants did not experience daily exposure. This study found, ‘Liking increased more in the three intervention conditions than in the control condition, and there were no significant differences between the intervention conditions.’ However, three months later, the positive effect of exposure with no reward was no longer significant. The authors concluded that ‘external rewards do not necessarily produce negative effects and may be useful in promoting healthful eating’.<sup>287</sup> Building on a variety of evidence, Mary Rudolf suggests that parents should

offer new foods 15 times or more 'before considering that rejection is a true dislike'.<sup>288</sup>

### Practising responsive feeding

Responsive rather than restrictive feeding is very important because restrictive feeding interferes with very young children's natural capacity to regulate the amount and type of food they consume to match their biological needs. A body of research suggests that babies are born with the ability to regulate how much milk they need to drink in order to grow healthily. In 1975 Fomon et al showed that infants less than 6 weeks old adjust their formula intake in response to being given formulas of differing energy density.<sup>289</sup>

This ability to adjust intakes appropriately is still present in early childhood, as illustrated by a number of studies. For example, Birch et al showed that when 3- and 5-year-olds in day care were given sweet drinks they compensated for the extra calories by eating less when they helped themselves to snacks.<sup>290</sup> Zandstra et al even found this to be true when high energy snacks were given before lunch – with children compensating by eating less at the meal.<sup>291</sup> However, this ability to adjust intakes appropriately seems to diminish with age, and by adulthood compensation is less effective (particularly for calories taken as a liquid).<sup>292</sup>

As Mary Rudolf summarises,

*Clearly some individuals are better able to compensate appropriately, and those that compensate less will tend to be heavier. This may reflect inherent differences in genetic make up, but also may be due to early feeding experiences.*<sup>293</sup>

For example, there is evidence from one study that mothers who control their own eating tend to be more restrictive in the way that they feed their children, and this increases the likelihood that their own children will be overweight.<sup>294</sup> There is also evidence that if mothers pressurise their children to finish food, those children eat more fat than children who are not



pressurised. Therefore, both encouraging children to eat more and less than they wish to is associated with negative results, reinforcing the message that parents should feed infants and toddlers in a responsive way that allows them to regulate their own appetite.

### Offering age-appropriate portion sizes

While most babies are born with the natural ability to regulate their own intake, this can be overridden by inappropriate feeding behaviours (for example if parents encourage their children to continue eating when they are full). Children are also influenced by how food or drinks are presented, especially by the amount of food given and the size of plate that food is presented on.<sup>295</sup> It is therefore important that parents and staff in early years settings should try to serve age-appropriate portion sizes (reflecting the ‘me-size meals’ principle that is a key message within the Start4Life campaign discussed in chapter 7).

Appropriate portion sizes for infants and older toddlers vary, and children often vary the amount they eat over any day or week, but documents such as the Infant Toddler Forum’s factsheet ‘Portion sizes for toddlers 1 to 3 years’ or the School Food Trust’s *Voluntary Food and Drink Guidelines for Early Years Settings in England* can provide a useful guide for parents of a portion size that is roughly appropriate for this age group.<sup>296</sup> An appropriate portion size then reduces the risk that a child will over-eat although, as mentioned in the previous point, it is ultimately for the child to decide whether they are still hungry or full up.

### Modelling healthy eating behaviours

A variety of studies have demonstrated a strong relationship between mothers’ diets and those of their children. For example, girls with higher fat diets are likely to have mothers who also have high fat diets.<sup>297</sup> Studies also show that children’s way of eating is influenced by that of their parents. In a study where pre-school children were given unrestricted access to sweets and

crisps after a meal, Cutting et al found that the girls who tended to eat uncontrollably tended to have mothers who reported eating uncontrollably themselves.<sup>298</sup> Another study found that children were more willing to try a new food if they had witnessed their mother eating it (the effect of watching a stranger eat the food was less strong),<sup>299</sup> while a third study found that children showed a greater preference for new flavours of yoghurt if they had seen their teacher drink and consume it first.<sup>300</sup>

Given the variety of evidence demonstrating the strong influence of role modelling, Mary Rudolf suggests, 'It could be argued that children's lifestyles can only change for the better if they live in a household where adults are leading a healthy lifestyle themselves.'<sup>301</sup> Although most research has focused on mothers, teachers have also been shown to be important role models, and it is highly likely that the eating behaviour of other family members, including siblings, fathers, grandparents and extended family also play a strong role in this way. A whole-family approach to inculcating healthy eating habits could, therefore, be important. Shared family mealtimes provide a good opportunity for modelling healthy eating, as long as all the family eat the same healthy foods. There is also evidence that for teenagers, family meals also are associated with (but not necessarily the cause of) other good outcomes, such as fewer high-risk behaviours and lower school drop-out rates.<sup>302</sup>

### Regular mealtimes

Previous analysis of the Millennium Cohort Study has found that children who do not eat breakfast every day are more likely to be obese at age 5, as are children who do not have regular mealtimes (although this latter finding is no longer significant when controls for family income are applied).<sup>303</sup> Our own secondary analysis for this study (presented in chapter 2) found that irregular mealtimes at age 3 are associated with children having more social and emotional difficulties at ages 5 and 7 and a greater likelihood of poor test scores at ages 5 and 7. This analysis also found that not eating breakfast every day at age 5

was predictive of children having more emotional and behavioural problems and worse test scores at age 7.

Therefore, it is important to babies' and young children's health and development that they have regular mealtimes each day. The Department of Health document *Birth to Five* recommends that babies and toddlers should eat 'three meals a day with a drink at each meal and two or three small, healthy snacks'.<sup>304</sup>

### Adopting an authoritative parenting style

In her 2009 study, Mary Rudolf cites the well-known parenting literature which demonstrates the importance to children's development of an 'authoritative' parenting style, which 'involves being sensitive and responsive, while remaining in charge and able to maintain appropriate limits for behaviour'. Less well known is the evidence of the relationship between parenting style and children's eating habits.

Rudolf does not cite any examples of evidence that relate specifically to pre-school children, but she does cite several studies showing that interventions to change parenting style can have an impact on children's weight. For example, a randomised controlled trial of an augmented version of the Triple P programme in Australia (adapted to include an additional module on healthy eating and lifestyles) found that the children of parents who attended the parenting skills classes (with or without the additional module) experienced significant weight reduction that was not shared by the control group who received no intervention. This led the authors to comment, 'Parenting-skills training combined with promoting a healthy family lifestyle may be an effective approach to weight management in prepubertal children.'<sup>305</sup> There is also evidence that children of parents who are permissive in their parenting style (failing to restrict children's options to healthy food choices) are more likely to have a high BMI.<sup>306</sup> More research is needed to build evidence of the role of parenting styles in shaping the feeding behaviours of pre-school children.

### Managing fussy eating

The School Food Trust cites evidence in its *Voluntary Food and Drink Guidelines for Early Years Settings in England* that 10–20 per cent of children aged under 5 are fussy eaters.<sup>307</sup> Our own analysis of the Millennium Cohort Study (presented in chapter 2) demonstrated that at age 7 nearly one-quarter (23 per cent of children) participating in the study were described as ‘a fussy eater’ by their parent.

Building on – and combining – the previous five principles, the School Food Trust’s report suggests eight strategies that early education settings can use to manage fussy eating, and it suggests that, where possible, parents should also use these strategies to provide a consistent approach. These are the eight strategies:

- 1 Seat children who are fussy with children who are good eaters, to provide the fussy eaters with a good role model.
- 2 Encourage staff to eat with children and show enthusiasm for the food.
- 3 Give children repeated opportunities to sample a new food.
- 4 Offer children small tastes of a new food and allow them to spit it out.
- 5 Reward children with praise if they try a new food.
- 6 Do not reward children with food, but you can reward them for trying a new food with an item such as a sticker.
- 7 Do not pressure children to finish a food they do not like (this can increase a child’s dislike, potentially lasting into adulthood).
- 8 Offer children small servings of new foods so that they are not intimidated.<sup>308</sup>

Most of these strategies are applicable to children from the first point at which solid food is introduced, although they are particularly relevant to toddlers (for example children aged 12–18 months or older), who are more likely to be fussy eaters.<sup>309</sup>

### Tackling early childhood obesity

The strategies outlined above provide preventative approaches to establishing healthy eating behaviours in infants and children

from birth onwards. However – as observed in chapter 3 – the 2010 Health Survey for England found that around 11 per cent of English toddlers aged 2 are obese and a further 12–13 per cent are overweight.<sup>310</sup> Therefore, it is likely for the foreseeable future that evidence-based programmes and strategies will be needed to address early childhood obesity and reduce the risk that an overweight toddler will continue to be overweight as he or she grows up.

However, as mentioned above, there is currently a paucity of evidence-based programmes for addressing obesity in the pre-school years. Guidelines published by NICE in 2006 recommended that interventions seeking to tackle childhood obesity should:

- give advice on healthy eating and increasing physical activity
- address risk factors related to the family’s lifestyle and social context
- include strategies to promote behaviour change
- involve at least one of the child’s parents or carers<sup>311</sup>

However, as a 2010 review by Lanigan et al observed, ‘There are currently no published data from successful interventions for the prevention of preschool obesity in the UK.’<sup>312</sup> This study references a 2006 review by Flynn et al, which found that out of 150 studies on childhood obesity that they identified, only nine of these were aimed at children aged 0–5,<sup>313</sup> suggesting that this age group is particularly poorly served.

Lanigan et al observed that of five controlled trials to prevent obesity in preschool children for which data are available, two interventions were limited to increasing children’s physical activity (and are therefore of limited relevance here), while three combined improving diet and levels of physical activity. Of these three dual-purpose interventions, only one, called ‘Hip-Hop to Health Jr’, was successful, demonstrating a lower BMI z-score two years after the intervention had finished.<sup>314</sup> However, this intervention has not been trialled in the UK and Lanigan et al observed that at the time of writing, ‘There appear to be no interventions in the UK designed to

prevent obesity in preschool children that meet all the National Institute for Health and Clinical Excellence recommendations.<sup>315</sup>

Since the publication of the article in 2010, Julie Lanigan and her colleagues at UCL have successfully piloted their Trim Tots Healthy Lifestyle Programme for children aged between 1 and 5 years. The (previously unpublished) findings from their randomised controlled trial are presented in case study 1, providing new evidence of ‘what works’ in reducing the risk of obesity among pre-school children.

### **Case study 1 Trim Tots Healthy Lifestyle Programme (Childhood Nutrition Centre, UCL Institute of Child Health)**

#### **Background**

*Demos interviewed Julie Lanigan, one of the UCL researchers leading on the Trim Tots programme, in August 2012. She explained that the Trim Tots programme was first piloted in a Sure Start centre in Hertfordshire in 2008. This was a six-month community-based intervention aimed at reducing the risk of obesity among pre-school children aged between 1 and 5 years old.*

*In the Trim Tots programme parents and their young children learn about food and nutrition and healthy lifestyles through a combination of art activities, music and movement, stories and games. The programme is made up of a series of two-hour sessions over six months (twice weekly for three months and once weekly for three months). The time is roughly evenly split between a focus on physical activity and nutrition. Each session has a different theme, for example the ‘Eat well’ plate or another aspect of nutrition. The first 12 weeks of the programme have a greater emphasis on teaching principles of nutrition, while the second 12 weeks are more interactive to consolidate learning (exercises include label reading, cooking sessions and practising appropriate portion sizes).*

*In total, 96 families took part in this initial trial and 88 families completed the course.<sup>316</sup> The mean age of children*

*taking part in the intervention was 2 1/2 years. Children whose BMI was at or above the 91st centile were randomly allocated either to a waiting list (the control group) or to immediately start the Trim Tots intervention.<sup>317</sup>*

### **Results**

*The randomised controlled trial of the Trim Tots programme found that BMI and BMI z-scores were lower among children who had completed the intervention than those of the control group (by more than one centile space). This difference remained when the child's age and sex were accounted for. Importantly, a reduction in BMI was still apparent at long-term follow up, two years after completing the programme (unpublished). These findings suggest that the intervention had a significant effect in reducing the risk of obesity among pre-school children.<sup>318</sup>*

### **Next steps**

*The research team at UCL is now conducting a larger trial of the programme involving three more Sure Start centres, with 24 children at each centre taking part.*

## **Summary**

There is a growing evidence base of effective interventions for encouraging and supporting more mothers to breastfeed their babies. However, as yet very few evidence-based interventions exist that are aimed at improving nutrition in the early years from weaning onward, although the existing literature provides evidence for a variety of important principles that could be used to inform parents about how to feed their young children (for example introducing a variety of healthy foods; practising responsive feeding; offering age-appropriate portion sizes; modelling healthy eating behaviours; regular mealtimes; adopting an authoritative parenting style; and managing fussy eating).

The few evidence-based programmes that seek to improve nutrition in the early years tend to be fairly intensive interventions aimed at tackling obesity rather than lighter-touch preventative interventions (such as the ‘weaning workshops’, which are currently offered through universal health or early education services in some local authorities). Further robustly evaluated interventions are needed to build on this evidence base and offer a wider range of effective interventions (both intensive and ‘light touch’) that health commissioners in the UK can make use of to improve nutrition in the early years and reduce the risk of poor health and developmental outcomes.



## 10 Moving towards a preventative approach to supporting good early childhood nutrition

This chapter will briefly set out the case for moving towards a genuinely preventative approach to supporting good early childhood nutrition, before making a series of targeted recommendations on improvements to public policy and local services. Included alongside the recommendations is a series of case studies that illustrate good practice in a variety of types of service.

### Developing a policy approach that is preventative, not reactive

The principle of ‘early intervention’ – with a particular focus on the early years – is now so widely accepted that it is now almost a cliché within public policy discourse. However, despite the universal acknowledgement that it is more effective (and cost-effective) to intervene to prevent a social problem, than to react once a problem becomes manifest, we are clearly still failing to do this in the area of nutrition. The national obesity strategy, published in October 2011, currently puts too much emphasis on mitigating adults’ unhealthy lifestyles, rather than on supporting parents to make healthy food choices for their young children, and establish positive eating habits from birth.<sup>319</sup> The Healthy Child Programme seeks to be preventative, but makes the mistake of assuming that health practitioners have a firm knowledge of child nutrition, when many in fact do not. There is currently no framework in place to ensure that health visitors can access the training opportunities and resources that they need to build and maintain their nutritional knowledge.

There is also little consideration within either of these policy frameworks (or indeed in the Early Years Foundation Stage) of how we can use our national infrastructure of universal health and early years services more effectively to ensure that parents receive the same clear, consistent and evidence-based information about breastfeeding, introducing solid food and toddler nutrition from any and all services that they come into contact with.

And the human costs of failure are high. The evidence presented in chapter 1 demonstrated that whether or not a child is breastfed is predictive of that child's risk of high blood pressure and cholesterol levels, type 2 diabetes and obesity in later life. Our new analysis of the Millennium Cohort Study – presented in chapter 2 – also demonstrates that a child's eating behaviour at 9 months and 3 years is still predictive of their behavioural development, and test scores at ages 5 and 7.

Therefore, early childhood nutrition needs to occupy a more central position in both public health and early education policies. Nutrition for young children is clearly an issue that cuts across the responsibilities of the Department of Health and the Department for Education, demanding a joined-up policy approach that makes use of the substantial infrastructure spread across the country (including health services, children's centres and nurseries) to provide clear, reliable and evidence-based advice and support for parents.

However, public services are not the only actors in this arena. As this report has demonstrated, early childhood nutrition is a complex and sometimes contested area, in which a multiplicity of individuals and organisations (including central and local government, research institutes, charities and infant food brands) are competing to inform, influence and support parents' choices. There is therefore no single action that can be taken in isolation to improve early childhood nutrition. Instead, a range of measures are needed to reconcile and make use of the influence and trust commanded by this diverse set of actors.

The recommendations that follow are intended for a broad audience including central government, local government, health

and early years services (for example baby clinics, GP surgeries, children's centres and nurseries), food brands, online parenting forums and retailers. They are intended to initiate a conversation between these many organisations on how they can work together more effectively to provide reliable and consistent information to parents so they can give their babies and toddlers a good nutritional start in life.

### Recommendations and good practice case studies

These recommendations are not intended as an exhaustive or prescriptive list. Instead, they draw on the research findings contained in this report to suggest a series of key measures that could be taken to strengthen the quality and consistency of information, advice and support on early childhood nutrition that is available to parents in the UK. The recommendations are illustrated by a series of case studies that demonstrate how action can be taken in a variety of settings to improve the information and support with infant and toddler nutrition that is available to parents.

#### Recommendation 1: The Government should embed early childhood nutrition indicators in key developmental checks and frameworks measuring child poverty and health inequalities

This research has demonstrated that early childhood nutrition has a vital role in laying the foundations for young children's subsequent health and development. Therefore nutrition should be viewed as an important area of focus within the early intervention agenda and be included in policy frameworks that track progress in improving children's life chances and reducing health and educational inequalities.

The two main policy frameworks that track children's progress – the Early Years Foundation Stage and the Healthy Child Programme, now include developmental checks for children around the age of 2 (referred to as the 'Two to two-and-a-half-year health review' in the Healthy Child Programme<sup>320</sup>). To demonstrate that the Government is serious about improving

children's early nutrition, these developmental checks should include checks on the quality of children's diet and promote discussion with parents on how they can best meet their child's nutritional needs.

The Government is also developing sets of indicators for measuring child poverty and health inequalities, following the recommendations of independent reviews such as the Frank Field review and the Marmot review of health inequalities.<sup>321</sup> While each of these reviews recommended national indicators related to children's health, neither suggested an indicator that directly relates to young children's diets. The Department of Health's draft Public Health Outcomes Framework, published in January 2012, proposed that indicators measuring national progress on reducing health inequalities should include breastfeeding, an indicator of child development at 2–2.5 years, excess weight in 4–5 and 10–11-year-olds and tooth decay in children aged 5. It also recommended an indicator relating to diet, but not specifically to young children's diets.<sup>322</sup> The Government's 2011 document *A New Approach to Child Poverty* proposed, 'We will develop an indicator looking at gaps in school readiness for children aged up to 5 between children from different social backgrounds following consideration of the Tickell review.'<sup>323</sup> However, it did not specify which aspects of school readiness might be included and whether a nutritional indicator might feature as part of this.

Demos recommends that the Government's set of indicators for measuring child poverty and health inequalities should each include objective indicators to track nutrition in the early years, potentially at age 18 months (the age at which nutritional assessment begins in the National Diet and Nutrition Survey) or at 2 years to coincide with the developmental checks in the Early Years Foundation Stage and Healthy Child Programme. The Government should work with a broad set of stakeholders to identify one or more appropriate indicators of the quality of young children's diets. This will enable the Government to create an objective measure to track progress in improving early childhood nutrition.

**Recommendation 2: The Department of Health must build the nutritional knowledge of health and early years professionals by providing access to evidence-based training materials**

This research has demonstrated that health professionals – in particular, health visitors – have a vital role in informing and supporting parents to meet the nutritional needs of their babies and toddlers. Health professionals are parents' second most popular port of call for information on feeding young children (second only to family and friends), with 28 per cent of parents going to a health professional first if they want advice. Health visitors have a key role in delivering the Healthy Child Programme and are the main contact point for parents on health-related issues in the first years of a child's life.<sup>324</sup> However, there is currently no standard training course or training materials available to health visitors to help them to fulfil this role effectively.

If health visitors and other professionals are to be able to meet the needs of parents for consistent information and advice on nutrition, they need to have access to clear evidence-based guidance that is endorsed by the Department of Health. Therefore, Demos recommends that the Department of Health should make high-quality, evidence-based online training resources on early childhood nutrition available to all early years and relevant health professionals who need them (including midwives, health visitors, GPs, nursery nurses and parenting support workers). These would need to be updated regularly to ensure that they reflect the most up-to-date evidence available.

The e-learning programme developed by the Royal College of Paediatrics and Child Health as part of the Healthy Child Programme with funding from the Department of Health includes a module on nutrition and growth which (if adapted for a broad audience) could potentially be suitable for this purpose. Once available, such training materials could be used as the basis for internal training sessions for health visiting teams, led by team leaders, as demonstrated in the case study on the Family Nurse Partnership (case study 2).

To further assist the process of embedding knowledge of early childhood nutrition among professionals delivering frontline services, the subject of early childhood nutrition should

be included in all relevant professional health qualifications, including doctors training for general practice, midwives, health visitors and early education and childcare qualifications, as recommended by the recent Nutbrown review.<sup>325</sup> Responsibility for maintaining up-to-date nutritional knowledge should also be incorporated into performance management frameworks, with the expectation that professionals will regularly update their knowledge using available e-learning resources.

## Case study 2 Supporting early childhood nutrition through the Family Nurse Partnership

### Background

*The Family Nurse Partnership is an evidence-based early intervention home visiting programme aimed at improving the health and social outcomes of babies born to vulnerable young mothers. It provides an intensive programme of approximately 50 home visits from trained nurses from early in the mother's pregnancy until the child is aged 2. The family nurses delivering the programme 'build supportive relationships with families and guide first-time teenage parents so that they adopt healthier lifestyles for themselves and their babies, provide good care for their babies and plan their futures'.<sup>326</sup>*

*Originally developed in the USA, the Family Nurse Partnership has been tested in sites in England since April 2007 and there are now Family Nurse Partnership teams in over 80 areas.<sup>327</sup> The evaluation of pilots of the Family Nurse Partnership programme conducted in the UK between 2007 and 2009 demonstrated a range of positive outcomes including:*

- *reductions in mothers smoking*
- *increases in breastfeeding*
- *improved parent-child interaction*
- *improvements in couple relationships<sup>328</sup>*

### Improving maternal and child nutrition through the Family Nurse Partnership

*Demos interviewed the supervisor of a Family Nurse Partnership team in the north of England in July 2012. She explained that an important strength of the Family Nurse Partnership is that it offers parents a personalised, continuous relationship with the same trained professional for the whole length of involvement, over two years. The Family Nurse Partnership focuses on five domains, which include the mother's personal health and the maternal role. Therefore, supporting good nutrition for the mother and baby are important aspects of the Family Nurse Partnership nurses' work.*

*Family Nurse Partnership nurses are trained in motivational interviewing techniques so they can skilfully encourage the mother to explore issues in depth, rather than focusing on information giving. The programme leads to discussion about dietary choices and preferences, exploring which foods are eaten more readily and foods that are disliked. Partnership nurses find out the mother's knowledge of nutrition and help her to think about what nutrients might help the baby's brain to grow, or, for instance, how the mother might ensure that she consumes adequate sources of iron or calcium to enhance foetal growth. Discussions to explore the mother's knowledge are complemented by the family nurse providing relevant information to help the mother to make appropriate food choices to benefit her and the baby during pregnancy.*

*Once the baby is born, the nurse works with the mother to explore her motivation to change and discuss her hopes for the baby's long-term diet so that she may improve her own and her baby's nutrition (for example, by buying more fruit and vegetables).*

### Nutrition training for Family Nurse Partnership nurses

*The Family Nurse Partnership team supervisor that Demos interviewed explained that the nurses receive specific training*

*on engaging mothers in a strengths-based way, allowing them to develop their own informed choices in lifestyle, including on family nutrition. However, the Partnership does not provide specific training on family nutrition; when Family Nurse Partnership nurses are recruited, it is expected that they will have a certain level of knowledge about nutrition. The Family Nurse Partnership programme does not provide specific training resources around food and nutrition; therefore services must find their own resources. If additional training needs are identified, nurses may be able to access internal training within their own organisation.*

*The Family Nurse Partnership team supervisor explained that nurses in her team spend one day each month on internal training, through a peer-learning model. To support internal training on the nutritional needs of infants and toddlers, this Family Nurse Partnership team have used resources from the Infant and Toddler Forum,<sup>329</sup> which are developed by experts and based on the most up-to-date evidence. These resources include various factsheets for professionals as well as information for parents, for example, portion sizes for a toddler's diet, importance of iron and prevention of iron deficiency anaemia, as well as managing fussy eating in toddlers.*

*Supporting family nurses to access evidence-based resources is an important way to complement good clinical practice. For example, one family nurse used the Infant and Toddler Forum's 'portion size' factsheet with a parent to respond to her concerns about a toddler's fussy eating behaviour. This factsheet enabled the parent to find out for herself that her child had a substantially larger than required dietary intake on most days. It was then possible for the parent to recognise the child's risk of obesity through this knowledge, without the nurse needing to tell the parent. The factsheet also encouraged the parent to give the toddler foods that they had not previously tried, encouraging the family to expand their food choices, to offer the child a more varied and balanced diet.*



### The Family Nurse Partnership evaluation

*The national evaluation of the Family Nurse Partnership measures a range of health outcomes but it does not specifically assess infant and toddler nutrition (above and beyond breastfeeding rates). This is potentially a new area of focus that would benefit the programme and the evaluation, to explore the impact of the programme in improving maternal and infant and toddler nutrition and thereby share good practice across the programme.*

### Recommendation 3: The Department of Health should conduct a national public health campaign to inform parents of the risk of vitamin D deficiency and the benefits of vitamin supplementation for mothers, infants and toddlers

It is now recognised that Vitamin D deficiency is on the rise among children in the UK.<sup>330</sup> Government guidance to parents suggests that all children aged 6 months+ could benefit from vitamin D supplementation, but our research with parents for this report has shown that this recommendation is not currently being communicated effectively.

A recent survey of parents by the Feeding for Life Foundation found that 74 per cent of parents were not aware of the Department of Health's recommendations on vitamin supplementation and 65 per cent of parents who were aware of the recommendation did not know which vitamins are recommended daily.<sup>331</sup> In our own survey (reported in chapter 8), we found that less than a third of mothers (27 per cent) said that they had been advised to give a vitamin supplement to their baby or toddler. Previous studies have also shown that low knowledge of vitamin D deficiency among health professionals means that few parents are made aware of the benefits of vitamin D supplementation during pregnancy and for infants and toddlers.<sup>332</sup>

This being the case, it is hardly surprising that – as observed in chapter 7 – take-up of the Healthy Start free vitamin supplementation scheme is currently very low, with only 3.5 per cent of children who are eligible for free vitamin supplements

actually receiving them. If neither health professionals nor parents are aware of the risks of vitamin D deficiency or the benefits of supplementation, it is unlikely that parents will feel incentivised to take up this offer, especially if the vitamin drops are not always readily available and would require parents to go out of their way to obtain them.

Therefore, Demos recommends that to combat the recent resurgence of vitamin D deficiency and related conditions such as rickets, the Department of Health should coordinate a national public health campaign to raise awareness of the causes of vitamin D deficiency, and increase health professionals' and parents' knowledge of the benefits of vitamin D supplementation. A campaign that was nationally coordinated could ensure that publicity materials were of a high quality and provided consistent messages. This new campaign could be embedded within the Start4Life and Change4Life communication mechanisms, as well as making use of the new NHS Information Service for parents.

With the support of national government, and potentially led by Public Health England, this campaign would need to be implemented at a local level through health and wellbeing boards, clinical commissioning groups and local authority public health teams, in partnership with local health and early years services. Alongside this awareness-raising public health campaign, it would be essential for local health commissioners to make sure that children's vitamin drops were affordable and readily accessible for parents in all local areas. Case study 3 describes a successful public health campaign conducted by the Heart of Birmingham Primary Care Trust. Following this campaign, the number of cases of diagnosed vitamin D deficiency in children aged under 5 fell by 59 per cent.<sup>333</sup>

### Case study 3 Reducing rates of vitamin D deficiency (Heart of Birmingham Primary Care Trust)

#### Background

*Between 2002 and 2006, a series of published case reports indicated that vitamin D deficiency had become a 'resurgent condition' among British children. These included a survey in the West Midlands of paediatricians, who reported 24 cases of vitamin D deficiency among children aged 5 or younger during 2001. Another survey conducted in three hospitals in Birmingham between June 2001 and June 2003 found 65 cases of vitamin D deficiency in children (48 of these cases were rickets). Each of these children had an Asian, African or Afro-Caribbean ethnic background.*

#### Public health campaign

*In 2005 the Heart of Birmingham Primary Care Trust responded to this public health challenge by developing a policy of universal vitamin D supplementation for pregnant and breastfeeding mothers and children aged under 5. This programme was funded by the Trust, although where mothers were eligible for free Healthy Start vitamin supplements under the national scheme, the cost of their supplements could be reclaimed.*

*Health visitors gave mothers Free Healthy Start vitamin drops (containing vitamin D) for their babies from the time of their first home visit, two weeks after the baby's birth. This was to ensure that the programme would have universal reach, as there are no universal home visits at 6 months (the time from which vitamin supplementation is recommended for all children) under the Healthy Child Programme. In addition to promoting the vitamin supplements through home visits, the supplements were also given out in a variety of locations including children's centres, health centres and GP surgeries.*

*At the same time, all relevant health professionals including health visitors, GPs, midwives and paediatricians received training on the importance of vitamin D supplementation for young children. There was also a public*

*awareness-raising campaign to disseminate information about the risks of vitamin D deficiency, and means of increasing vitamin D intake, through posters, flyers and branded materials distributed through health centres, surgeries and Asian shops.*

#### **Results of the campaign**

*Following this public awareness campaign and universal vitamin D supplementation drive, total cases of diagnosed vitamin D deficiency disease among children aged under 5 reduced from 29 cases in 2005 to 12 cases in 2009/10. This amounts to a 59 per cent decrease in the reported number of cases.*

*Surveys demonstrated that public awareness of the importance of vitamin D also increased substantially over this time period (table 6).*

**Table 6 Public awareness of vitamin D according to surveys conducted between 2007 and 2011**

	2007	2008	2011
No of respondents	100	108	76
Had heard about vitamin D (%)	61	73	89
Knew that vitamin D was essential for bone health (%)	21	41	79
Knew that sunlight was the main source of vitamin D (%)	20	56	85

*Uptake of the Healthy Start vitamin supplements provided by Heart of Birmingham Primary Care Trust reached 17 per cent for women and children by 2010. This is substantially higher than the rate of uptake of free Health Start vitamin supplements under the national Healthy Start programme, which is estimated to amount to only 2–4 per cent of those who are eligible. Robert John Moy et al suggest that in addition to those families who received the free Healthy Start vitamin supplements provided by Heart of Birmingham*

*Primary Care Trust, it may be the case that 'informed and motivated families had obtained vitamin D supplements from over-the-counter sources'. Therefore, the true impact of the programme may be far greater than the uptake figures would suggest.*

*Source: Moy et al, 'Successful public health action to reduce the incidence of symptomatic vitamin D deficiency'.<sup>334</sup>*

**Recommendation 4: Health and wellbeing boards should have a statutory duty to commission wraparound services to provide mothers with access to timely information and support with breastfeeding at all times during pregnancy and early infancy**

National data demonstrate that there were improvements in the rate of breastfeeding initiation in the UK between 2005 and 2010, with the proportion of mothers initiating breastfeeding increasing from 76 per cent in 2005 to 81 per cent in 2010 (data on the rate of breastfeeding continuation from the 2010 infant feeding survey are not yet available).<sup>335</sup>

However, the research undertaken for this report shows that while breastfeeding rates are increasing in the UK, there is still substantial room for improvement in the quality and availability of breastfeeding support. For example, 18 per cent (nearly a fifth) of the mothers polled for this research felt they had not received enough information and advice about breastfeeding and 39 per cent (nearly two-fifths) thought that the advice on breastfeeding they received was confusing or contradictory. It was also clear from our research workshops that breastfeeding support is very patchy, with the type and availability of breastfeeding support services varying substantially between local areas.

The mothers who participated in our research workshops tended to have made decisions about how they intended to feed their baby early in their pregnancy. The extent to which mothers considered breastfeeding was also strongly influenced by their social context, and in particular the experiences of friends and family members who had recently had babies. However, this did

not mean that they were not influenced by the advice they received from health services; in fact, many of the mothers mentioned the advice of health professionals as a key influencer in their decisions about infant feeding. This reinforces the point (recognised in the Healthy Child Programme documentation<sup>336</sup>) that public health messages about the health benefits of breastfeeding must be given early on in pregnancy if they are to influence mothers' choices. It was notable in our research workshops that some mothers absorbed the message that 'breast is best', but were not clear *why* breastfeeding is recommended. Therefore, health providers should ensure that the information they give to pregnant mothers clearly and consistently states the specific health benefits of breastfeeding for babies and mothers.

Another clear message from the workshops was that some mothers felt that they received an unwelcome amount of 'pressure' to breastfeed, when they had already decided that they did not intend to breastfeed. This was felt to be counter-productive by some mothers, who suggested that antenatal services should ensure that dialogue remains open and that mothers are able to discuss bottle feeding if they wish to.

The experiences described in our research workshops also showed that even mothers who make a choice to breastfeed their children do not always feel able to when the time comes. Mothers who participated in our research workshops struggled with breastfeeding at different times and for different reasons. Birth complications, physical impairments and health conditions affecting the child (such as tongue tie) all presented challenges for mothers who wanted to breastfeed, while some other mothers found that they could not access the support they needed to establish breastfeeding immediately after their baby's birth. With access to appropriate support, these are all challenges that mothers can potentially overcome – and in many cases (although not all) the mothers that we spoke to did receive this support and were ultimately able to breastfeed.

The huge importance of breastfeeding to public health is now recognised in a variety of policy frameworks and performance targets, including Public Service Agreement 12 ('Improve the health and wellbeing of children and young

people'), which is measured according to the prevalence of breastfeeding at 6–8 weeks.<sup>337</sup>

To give full recognition to the importance of breastfeeding, Demos recommends that health and wellbeing boards should have a statutory duty to commission wraparound breastfeeding information and support services for parents, covering the antenatal period (from early pregnancy), the immediate period of birth, and at least six months following the baby's birth.<sup>338</sup>

A variety of government guidance for health commissioners already exists, including the Healthy Child Programme documentation and other Department of Health guidance such as *Commissioning Local Breastfeeding Support Services* (2009) and *Breastfeeding Peer Support in London* (2012).<sup>339</sup> The Department of Health also recommends that maternity services implement the Baby Friendly Initiative 'as the best evidence-based vehicle to raise levels of breastfeeding prevalence'.<sup>340</sup> However, as comments made by the parents participating in this study have demonstrated, it is not enough to provide breastfeeding support services in hospitals and the community; it is essential that these services are joined up and well publicised to parents, so that mothers leaving the hospital are easily able to access breastfeeding support services once they return home. As case study 4 demonstrates, these services should include a combination of expert support and peer support to meet the needs of mothers from a variety of backgrounds and in a variety of circumstances.

### Recommendation 5: Health services should provide clear and consistent advice on safe bottle feeding to parents who need it

As set out in recommendation 4, it is essential to public health in the UK that more mothers should be encouraged and supported to breastfeed. However, as we know from the 2010 Infant Feeding Survey, 19 per cent of babies in the UK do not have breastfeeding initiated, while the 2005 Infant Feeding Survey found that at 1 week only 45 per cent of mothers, and at 6 weeks only 21 per cent of mothers, were exclusively breastfeeding their babies. The survey found that a third of breastfed babies had

been fed some formula milk or another liquid before they left hospital. Results from the 2010 Infant Feeding Survey are not yet available but it is likely that they will show similar trends in complementary feeding.

Therefore, while it is desirable that more mothers should initiate and persist with exclusive breastfeeding, it is inadvisable to ignore the fact that the majority of mothers are not following government recommendations and most mothers currently choose to supplement (or replace) breastfeeding with formula milk at some point. It is therefore important that mothers who use infant formula should have access to good quality information about safe bottle feeding. Quantitative studies have demonstrated that babies who are not exclusively breastfed are at increased risk of stomach upsets and hospitalisation for diarrhoea and infections.<sup>341</sup> Inappropriate or unsafe formula feeding and bottle feeding practices may bear some responsibility for this, and rates of childhood illness could potentially be reduced by better provision of information and advice on bottle feeding: 27 per cent of mothers who participated in the survey undertaken for this research said they had not received enough information and advice about formula feeding.

Demos recommends that midwives and health visiting teams should ensure that they can provide information on safe bottle feeding to all parents who need it, and especially to those who request this information. There is no contradiction between providing information on safe bottle feeding and the Baby Friendly Initiative, which in fact specifies, 'Hospitals should ensure that all mothers who are not breastfeeding are able to correctly prepare a bottle of infant formula prior to discharge from hospital.'<sup>342</sup> However, the Baby Friendly Initiative is also clear that 'instructions in the preparation of formula feeds should not form part of routine group teaching sessions', as this could potentially suggest that all women need this information, undermining the expectation that most mothers will choose to breastfeed.<sup>343</sup>

The Department of Health's Start4Life programme has recently produced a leaflet on safe bottle feeding, in partnership with Unicef, which health visitors and midwives can pass on to



parents who need this information.<sup>344</sup> At baby clinics and during home visits, health visitors should discuss safe bottle feeding with mothers who are not exclusively breastfeeding and, where possible, should observe bottle feeding to increase opportunities to tackle inappropriate feeding behaviours.

**Recommendation 6: The Department of Health must work with all stakeholders to build a consensus around guidelines on the earliest age at which parents can safely introduce solid foods into their babies' diets**

In each of the four research workshops that Demos conducted for this research, parents expressed their confusion at the conflicting advice they had received from health visitors and other health professionals on the appropriate age for first introducing solid foods into their baby's diet. Health visitors to mothers at the fourth workshop had advised them to start introducing solid foods when their babies were at a variety of ages between 4 months and 6 months old. Parents also frequently pointed out the inconsistency between the information presented on infant food packaging (which often presents purees and other baby foods as being suitable for children aged between 4 and 6 months) and the advice they had received from health professionals, who frequently said that solid foods should not be introduced until a baby is at least 6 months old. Food packaging and baby food brands are important sources of information for parents. We found in the parents' survey that 13 per cent of mothers aged 16–24 cited baby food brands (including food packaging and websites) as an influence in their decision to begin weaning their baby, compared with 5 per cent of mothers overall. In some cases parents cited this inconsistency when explaining their decision to ignore their health visitor's advice.

In the survey of parents that we conducted for this research, more than half of parents (54 per cent) said they had found advice on weaning to be confusing and contradictory. Table 7 demonstrates that guidance for parents on the age at which they may introduce their babies to solid food is currently

very inconsistent, with some organisations recommending that solid food can be introduced from 4 months and others recommending that solid food should not be introduced until a baby is around 6 months old.

This situation is clearly confused and should not continue. Therefore, Demos recommends that the Department of Health must work with all stakeholders to build a consensus around guidelines on the earliest age at which parents can safely introduce solid foods into their babies' diets. An authoritative guideline that has health professionals' support will need to be evidence-based and also recognise the need for flexibility to meet individual babies' needs. The Scientific Advisory Committee on Nutrition (SACN) will publish its review of complementary and young child feeding in 2013 and this is likely to be influential in informing future government policy in this area. SACN should address this issue of inconsistency between government guidance and infant food packaging when making its recommendations.

**Recommendation 7: The Department of Health should refresh its Start4Life and Change4Life strategies to develop clear messages on healthy eating for the toddler age group**

As this report has demonstrated, feeding behaviours learned early in life shape children's subsequent tastes and preferences. Therefore it is important to children's subsequent health and wellbeing that they learn healthy eating behaviours and learn to enjoy a variety of tastes and flavours from an early age.<sup>345</sup> As we have seen in chapter 9, a great deal is now known among academics, nutritionists and dieticians about effective methods for teaching babies and toddlers to adopt healthy eating behaviours, but our research for this report suggests that channels for communicating this information and advice to parents are currently ineffective and many parents are concerned about a lack of trustworthy advice on weaning and toddler nutrition, and inconsistent or confusing advice. Half of the mothers who took part in our survey said they were unsure about what appropriate portion sizes were for their baby or toddler.

Table 7 **Recommendations by various organisations on the age at which solid food can first be introduced**

From 4 to 6 months

- NHS leaflet 'Weaning: starting solid food' (2008) - available to download from Department of Health website: 'Health experts agree that around six months is the best age for introducing solids... Solid foods should never be introduced before four months.'<sup>346</sup>
- **The British Dietetic Association:** 'The Department of Health recommends exclusive breastfeeding until 6 months (26 weeks) of age; all infants, breastfed and formula fed, should be weaned at 6 months. Some parents, however, may wish to wean earlier, and four months, or 17 weeks, should still be considered as the earliest age that weaning on to solids should be started.'<sup>347</sup>
- **The British Nutrition Foundation:** 'A baby should be started on solid foods at around six months of age, but no earlier than 17 weeks'.<sup>348</sup>
- **Great Ormond Street Hospital:** 'The Department of Health recommends that healthy term infants need no nutrition other than breast milk or formula milk until 6 months (26 weeks) of age... Some babies may benefit from solids sooner and may be ready for solids from four months (17 weeks of age). Each baby should be assessed on its needs for solids individually. Discuss this with your ward dietician.'<sup>349</sup>
- **Cow & Gate:** 'The Department of Health recommends weaning should start from 6 months and certainly no sooner than 17 weeks.'<sup>350</sup>
- **Aptaclub:** 'Weaning is an important stage of your baby's development, and it's important not to rush into it before they're ready. The Department of Health recommends that weaning should start from 6 months and certainly no sooner than 17 weeks.'<sup>351</sup>

At 6 months

- **World Health Organization:** Infants should be exclusively breastfed for the first 6 months of life (recommended since March 2001).<sup>352</sup>
- **Unicef UK:** 'Introducing your baby to solid foods, often called weaning onto foods, should start when your baby is around 6 months old.'<sup>353</sup> Website hosts Start4Life leaflet developed in partnership between Unicef and the Department of Health. [No mention of a minimum weaning age of 4 months or 17 weeks.]
- **Birth to Five,** DH, 2010 (Issued to all parents by the Department of Health): 'Health experts agree that about six months is the best age for introducing solids. Before this, your baby's digestive system is still developing.'<sup>354</sup> [No mention of a minimum weaning age of 4 months or 17 weeks.]
- **NHS Choices:** 'Introducing your baby to solid foods, often called weaning on to foods, should start when your baby is around six months old.' [No mention of a minimum weaning age of 4 months or 17 weeks.]
- **NHS Start4Life:** 'Research now shows that feeding your baby solid food before they are ready (they are ready at around six months) could lead to your baby getting an upset tummy... You might find that some baby foods have "from four months" on the label - but this information is based on outdated research.'<sup>355</sup> [No mention of a minimum weaning age of 4 months or 17 weeks.]
- **Mumsnet:** 'The official guidelines are actually pretty clear: you should wait to introduce solid foods until your baby is six months (26 weeks) old - whether he's breastfed or formula-fed (or both)'.<sup>356</sup>

Table 7 **Recommendations by various organisations on the age at which solid food can first be introduced – *continued***

From 4 to 6 months

- **Heinz:** 'The Department of Health recommends exclusive breastfeeding for the first six months of your baby's life. We know that all babies are different and develop at different rates and you may find your baby starts to show signs they are ready for weaning earlier... However, babies under 17 weeks should not be given solid food.'<sup>357</sup>

At 6 months

- **SMA Nutrition:** 'Up to 6 months of age milk (breast milk or infant formula) meets the nutritional requirements of the baby... At about 6 months, nutritious solids should be introduced to support the baby's continued growth and development.'<sup>358</sup>

It was observed in chapter 7 that the Department of Health has developed distinct public health communication campaigns for parents of children aged 0–2 years and 5+ years, called *Start4Life* and *Change4Life*. However, there is currently no consistent health messaging on nutrition for toddlers aged between 2 and 5, whose nutritional needs differ from those of older children. The need for consistent and authoritative advice about toddler nutrition is recognised by the Children's Food Trust's *Voluntary Food and Drink Guidelines for Early Years Settings in England*,<sup>359</sup> which is aimed at early years practitioners, but no equivalent advice is currently available to parents.

Chapter 9 demonstrated a variety of evidence on 'what works' in supporting healthy feeding behaviours for pre-school children, with key principles including:

- introducing a variety of healthy foods
- practising responsive feeding
- offering age-appropriate portion sizes
- modelling healthy eating behaviours
- having regular mealtimes
- adopting an authoritative parenting style
- managing fussy eating

Organisations such as the Infant and Toddler Forum have also produced a variety of tools aimed at parents to increase their knowledge of healthy eating behaviours for toddlers (see case study 7 below). However, our research for this report suggests that most parents are not aware that such tools exist and would not know where to find them.

Therefore, Demos recommends that the Department of Health should refresh its Start4Life and Change4Life strategies to develop distinct public health messaging on healthy eating for babies who are eating solid foods and toddlers (aged approximately 1–4 years). This should include simple leaflets and online resources that can be used by parents and early years and health professionals. It is also important that such tools should support parents to distinguish between messages on healthy eating for adults and older children and healthy eating for babies and toddlers.

**Recommendation 8: Health and wellbeing boards should have a statutory duty to commission local services to provide timely and consistent advice for parents on the introduction of solid foods and toddler nutrition**

We learnt from the research workshops that we conducted in four different parts of England that the quality and availability of support with weaning and toddler nutrition appeared to vary considerably between local areas. Our survey of parents demonstrated that 27 per cent of mothers felt they had not received sufficient advice on weaning and 32 per cent had not received sufficient advice on toddler nutrition. Some parents participating in the research workshops explicitly identified advice on healthy eating for toddlers as the biggest gap in support.

While we still lack a coherent public health strategy for providing a preventative approach to supporting early childhood nutrition it is hardly surprising that 11 per cent of English toddlers aged 2 are obese and a further 13 per cent are overweight. Rates of obesity and overweight are even higher at age 3.<sup>360</sup>

Therefore, Demos recommends that health and wellbeing boards should make the provision of support for parents with infant and toddler nutrition a central plank of their public health strategies. To support this process, health and wellbeing boards should be given a statutory duty to commission local services to provide timely and consistent advice for parents on the introduction of solid foods and on toddler nutrition. As with breastfeeding support, health and wellbeing boards should seek to provide wraparound services that provide all parents with access to timely and consistent information on infant and toddler feeding, as well as individual and specialist advice and support when this is required. Case study 4 provides an example of a multi-agency service in which health visitors and peer supporters provide parents with individual support with infant and toddler nutrition, while also referring parents to regular workshops on introducing solid foods and coping with fussy eating.

Local agencies implementing the Healthy Child Strategy should also be very clear that all parents have the right to access advice and support with weaning and toddler nutrition, regardless of whether they follow government guidelines on the correct age for introducing solid foods. It was concerning that several parents participating in the research workshops mentioned that they felt unable to access support from health visitors with weaning because they had not postponed weaning until their baby was 6 months old, as they had been advised to. It is appropriate that health visitors should communicate to parents evidence-based guidance on when solid foods can first be introduced safely. However, it is not appropriate that parents should feel excluded from subsequently accessing support if they do not choose to adhere to this advice. Parents who wean their babies before they are 6 months old should also be able to access professional support.

## Case study 4 Camden baby feeding team

### Background

*Demos interviewed Jane Taylor, one of the two baby feeding coordinators, who lead the Camden baby feeding team, in September 2012. She explained that the Camden baby feeding team was established in 2005 with funding from Camden Sure Start, which commissioned the programme from Camden Primary Care Trust (now superseded by NHS Camden). This followed a successful randomised controlled trial conducted by UCL between December 2002 and February 2004 to evaluate the effectiveness of an infant feeding peer support programme in two inner city London boroughs (Camden and Islington).<sup>361</sup>*

*The trial found that at follow-up, when the babies were 1 year old, the children of mothers who had received information and support with baby feeding from trained volunteer peer supporters:*

- *had been introduced solid foods later than those in the control group (although this difference was not statistically significant)*
- *had diets with significantly more carrots, boiled potatoes, apples and pears than children in the control group*
- *were significantly more likely to be eating family foods, and to be eating three meals each day by age 1<sup>362</sup>*

*Following a positive interim evaluation, the Camden baby feeding team was set up to provide expectant and new mothers with information and support on breastfeeding, starting solids and other aspects of baby and toddler nutrition, through a combination of peer support and signposting to other locally available support services.*

### The service

*Jane Taylor explained that the baby feeding team has trained more than 100 peer supporters in Camden since 2005 and they have between 20 and 30 active peer supporters at any given time. The peer supporters provide support with breastfeeding, encourage mothers to delay the introduction of solids until their*

*baby is aged 6 months, and direct parents to the regular 'starting solids' and toddler nutrition workshops that are provided weekly by the healthy eating team in Camden. These include three types of workshop, on:*

- *starting solids*
- *starting solids 'next steps'*
- *fussy eating*

*The peer supporters are all local mothers who have used local services, who wish to offer information and support to other mothers in Camden. They work in partnership with maternity services at the Royal Free and UCLH hospitals, children's centre services and health visiting teams.*

#### **Peer supporter training**

*The peer supporters receive training from the Breastfeeding Network on its Breastfeeding Helpers (peer supporter) course, which lasts for seven weeks (four hours each week) and is accredited by the Open College Network.<sup>363</sup>*

*The peer supporters also receive eight training sessions from the Camden baby feeding team, which are delivered by the infant feeding team coordinators, a community dietician and Camden's healthy eating team. These training sessions cover:*

- *introducing solid foods and safe bottle feeding*
- *healthy eating for children under 1*
- *safe home visiting*
- *administration and record keeping*
- *how to work effectively in a range of settings*
- *child protection level 2/3*
- *services available to families locally<sup>364</sup>*

*The peer supporters then receive monthly group supervision sessions with tutors from the Breastfeeding Network and one-to-one supervision with baby feeding team co-ordinators.*



### Benefits for mothers using the peer support service

*The Camden baby feeding team Peer Supporter Programme was evaluated between October 2005 and March 2007. This evaluation found that rates of breastfeeding at 6 months were 43 per cent among mothers receiving peer support, compared with the national average of 22 per cent of mothers.<sup>365</sup> The baby feeding team offered information and support to over 1000 women between April 2011 and March 2012.*

## Case study 5 The Children's Society's Mortimer House Children's Centre

### Background

*Demos interviewed Rashida Latif, Senior Family Support Worker at The Children's Society's Mortimer House Children's Centre in Bradford, in August 2012. Rashida explained that the centre promotes and supports healthy eating through a variety of services that encompass maternity, infancy and the early years. These services cater to an ethnically diverse community, including many Eastern European and Asian families, and they are supported by a variety of local partners including NHS Bradford and several not-for-profit organisations.*

### 'Cook & Eat: Healthy Eating in Pregnancy'

*Staff at Mortimer House Children's Centre received nutrition training funded by NHS Bradford's public health team to support the delivery of 'Cook and Eat' sessions. As part of the training course, one senior family support worker developed a leaflet on healthy eating in pregnancy with the support of Bradford Public Health Dieticians. She then piloted this leaflet with health professionals and parents attending Mortimer House Children's Centre.*

*In February 2011 Mortimer House began to run a Cook and Eat course to encourage and raise awareness of eating healthily during pregnancy. This is a six-week rolling course that is open to all pregnant mothers in the community,*

*although staff have also run sessions for mothers with young children with obesity problems (called 'Cook and Eat: Improve Your Health'). The Healthy Eating in Pregnancy course teaches participants recipes they can cook for up to six people within a budget of £15. Some of the main subjects covered by the Cook and Eat course include:*

- *balancing meals to provide the vitamins and food groups that are needed in pregnancy*
- *the 'eat well' plate*
- *foods to avoid during pregnancy*
- *appropriate portion sizes*
- *vitamin supplements needed in pregnancy*

*Mothers taking part receive a Healthy Eating in Pregnancy recipe and guidance book developed at Mortimer House. This provides a variety of healthy recipes including some Asian and Italian dishes. The staff at Mortimer House aim to ensure that the courses are inclusive by using culturally relevant recipes and consulting the mothers taking part about their interests and palates. Some Asian mothers have been keen to reduce their fat intake or have asked to learn how to cook English food in a way that isn't too bland. A key aim for Mortimer House is to increase engagement among mothers from the Eastern European community.*

#### **Breastfeeding support**

*Mortimer House provides breastfeeding support groups, delivered with the help of a peer supporter who was trained by the Breastfeeding Network. Their senior family support worker visits antenatal clinics to promote breastfeeding and raise awareness of the benefits of quitting smoking in pregnancy. Some information and guidance on breastfeeding is incorporated into the Cook and Eat Healthy Eating in Pregnancy courses, which are particularly targeted at mothers who are four to five months pregnant. Mortimer House staff work closely with the health visiting and midwife teams to raise*

*mothers' awareness that they can access breastfeeding support locally.*

#### **Giving information and advice at play groups**

*A senior family support worker regularly attends play groups at Mortimer House to give a variety of information to parents and carers:*

- *raising awareness of the importance of Vitamin D*
- *signposting to healthy eating activities*
- *promoting the Healthy Start scheme*

*Mortimer House staff are also working with NHS Bradford on its public awareness drive around the importance of vitamin D in the early years. NHS Bradford is distributing Vitamin D drops to eligible families in Bradford district-wide and Mortimer House will be supporting NHS Bradford to raise awareness among families so they do not miss out on receiving these supplements. Mortimer House is currently planning an event in partnership with NHS Bradford (to take place in Nov/Dec 2012) to raise awareness of vitamin D deficiency among the South Asian community. This will communicate the health benefits of being exposed to sunlight and eating vitamin D-rich foods and supplements.*

#### **Fresh 'fruit and veg' cooperative**

*Each Wednesday, Mortimer House hosts a 'fruit and veg' cooperative provided by the not-for-profit Bradford Community Environment Project. The fruit and vegetables are bought in bulk to reduce costs for families. The aim of this is to give local families the opportunity to buy more fruit and vegetables at affordable prices. The cooperative is very popular locally and the nursery uses the coop to run learning activities for the children, such as healthy shopping projects. The children's centre also supports (and benefits from) the cooperative by buying fruit and vegetables for its Cook and Eat sessions there.*

**Recommendation 9: The Department of Health, online parenting forums and brands and retailers that parents trust should work together to disseminate consistent and trustworthy advice on early childhood nutrition to parents**

The research conducted for this report found that baby food brands, parenting forums, clubs and food retailers all have a strong influence on parents' feeding choices for their babies and young children. In contrast, government information websites only reach a minority of parents. In our parents' survey we found that only 4 per cent of parents make a government website their first stop if they are looking for information on infant feeding, while 16 per cent of mothers visit an online parenting forum as their first port of call. As noted above, 5 per cent of mothers (and 13 per cent of mothers aged 16–24) said that their decision on weaning their baby was influenced by information from a baby food brand.

Therefore, it is a missed opportunity if the Department of Health's Start4Life social marketing strategy is limited to directing parents towards the Start4Life website (although this should be part of the strategy). In addition to providing a dedicated website to offer nutritional advice to parents, the Department of Health should develop a strategy for disseminating this information to parents through brands and retailers that parents trust. For example, it should work closely with popular parents' clubs and forums to make evidence-based guidance and information on nutrition more visible. The Department of Health could also potentially sponsor regular webinars or web chats with health visitors, nutritionists or dieticians on parenting forums to improve parents' access to expert advice.

Food retailers could also have an important role as a simple and direct route for communicating with parents. Several parents participating in our research workshops mentioned that it would have been easier for them if leaflets providing advice on weaning were available on supermarket shelves. Not all parents engage with health services and not all parents use the internet, but all parents (including the most excluded) need to buy food for their children. Therefore, the Government should work with a variety of food retailers to explore opportunities for developing new communication channels with parents. Supermarkets could stock

on their infant food aisles simple leaflets providing official guidance on safe formula feeding, introducing solid food, coping with fussy eating and key principles for toddler nutrition. In this way, retailers could also demonstrate that they are supporting early childhood nutrition as a key part of their corporate social responsibility commitments.

Infant food manufacturers also have an essential role in providing information and advice to parents on early childhood nutrition. Many parents participating in our research workshops mentioned that they made decisions about weaning based on the age ranges specified on the front of food packaging. However, it was also clear from our workshops that parents' label-reading skills often left a great deal to be desired and parents were often unaware of the salt and sugar content of processed foods and drinks aimed at young children. Therefore, the Government should work closely with infant food manufacturers to promote clear and consistent evidence-based advice to parents on nutrition for young children (as also discussed above in recommendations 6 and 7), and to make the nutritional content of infant foods clearer to parents, enabling them to make more informed choices.

**Recommendation 10: The Department for Education should work with children's centres and nurseries to share good practice on how they can build their role as hubs of expertise and support for parents on early childhood nutrition**

Children's centres and nurseries are key parts of the Government's early intervention strategy for improving children's health and educational outcomes and reducing child poverty. Case studies 5, 6 and 7 in this report provide examples of good practice in children's centres and nurseries of skilled professionals working directly with parents to support them to understand and meet their young children's nutritional needs.

As this report observed in chapter 7, the Department for Education recently commissioned the Children's Food Trust to develop voluntary guidelines on the provision of early childhood nutrition within early education settings. This guidance

recognised that ‘Involving parents and their children in food and drink provision is an important aspect of the Early Years Foundation Stage framework, as it helps to reinforce good eating habits for life.’<sup>366</sup> However, there is still very little information and guidance available to children’s centres and nurseries on how they can work most effectively with parents to support them to provide good nutrition in the home.

Therefore, the Department for Education should work with organisations like the Children’s Food Trust to gather evidence of effective approaches to parental engagement, to develop guidance for children’s centres and nurseries on how they can build their role as hubs of expertise and support for parents on early childhood nutrition, and to share existing good practice more widely.

#### **Case study 6 Working with parents at Busy Bees nursery (Brough)**

##### **Background**

*In 2008, Busy Bees partnered with Michelin-starred celebrity chef Phil Vickery to create a selection of nutritious recipes for their nurseries to include in their menus nationwide. Phil Vickery worked with Busy Bees to create a collection of 36 recipes for snacks, meals and desserts which contained all of the nutrients a growing child needs. Six Busy Bees’ chefs were invited to join Phil Vickery at Pru Leith’s Cooking Academy in London, where they were given the chance to prepare and taste selected recipes from the new menus.*

*In January 2010 Busy Bees nursery commissioned the School Food Trust to analyse their nursery menus and measure them against the nutritional guidelines published by the national Advisory Panel on Food and Nutrition in the Early Years in March 2010.<sup>367</sup> Busy Bees’ menus are now based on the School Food Trust’s guidelines.*

*In March 2012 Busy Bees was awarded a bronze Food for Life catering mark by the Soil Association for 129 nurseries in England and Wales.<sup>368</sup>*

*Between August and September 2012, Demos interviewed the following people at Busy Bees to learn more about how they work with children and parents to promote early childhood nutrition:*

- *managing director Marg Randles*
- *catering manager Mel Fox*
- *nursery manager Sue Barr*
- *nursery chef Matt Clarke*

**Accredited course for nursery chefs**

*Marg Randles and Mel Fox explained that there is currently no recognised qualification that specialises in catering for children in the early years. Therefore, Busy Bees has recently developed their own accredited training course in early childhood nutrition for their nursery chefs, most of whom have a background working in restaurants and therefore may not have experience in meeting the nutritional needs of young children. This course is accredited by City & Guilds and it is delivered one day each month over a period of six months, with assignments between each module. Content covered by this training includes information on:*

- *the nutritional make-up of foods*
- *health and safety and allergies*
- *how to introduce new foods to children*
- *how children learn about foods*
- *which foods are appropriate to different stages*
- *how to develop menus to use in the nursery*

*Mel Fox explained that the role of Busy Bees' nursery chefs has evolved so they now have a specialist knowledge base when cooking for young children.*

### **Nursery food**

*Busy Bees follows the School Food Trust's guidance that young children need to eat 'little and often' throughout the day to keep up their energy levels. At their nurseries, children are offered three meals and two snacks during the day:*

- *breakfast*
- *a healthy snack*
- *a two-course lunch*
- *a healthy snack*
- *a two-course tea*

*All Busy Bees nurseries offer a standard seasonal menu (one for spring and summer and one for autumn and winter), which has been analysed using nutrition software to ensure that it provides a good nutritional balance. The nurseries source their food from approved national and local suppliers that allow them to trace their ingredients to their source.*

### **Three-stage weaning menu**

*Busy Bees takes infants from as young as 3 months old, so they aim to work closely with parents to support them through the process of weaning their babies. It is important that parents feel reassured and supported through this process. The baby's key person will work closely with the nursery chef and the parent to create a list of foods the baby has already tried, and identify which stage they are at in the weaning process.*

*To support this process Busy Bees has developed a three-stage weaning menu to introduce babies progressively to smoothly pureed foods and then lumpy foods. These are the guidelines that Busy Bees follows, although parents may dip in and out of this approach and may choose to feed different foods at home. Busy Bees has a policy that they will not introduce a child to a new food they have not already tried at home, to reduce the risk of an allergic reaction. It is important to cater to the needs of each child and their parents individually and in some cases the nursery chefs give parents a portion of food to*



*take home and heat up for their child, to ensure that the child does not have any problems with it.*

#### **'Cooking with me'**

*Part of the role of the Busy Bees nursery chefs is to cook with the children and teach them about healthy eating through the Busy Bees 'Cooking with me' initiative. The children enjoy this and in some nurseries the children learn how to grow their own vegetables from seed, which they then cook in the nursery.*

#### **Menu displays and the 'open kitchen' policy**

*Matt and Sue explained that Brough nursery has a big emphasis on informing parents about the food they offer through visual prompting. Matt has two large notice boards where he displays the nursery menus to advertise the fresh food he is making within the nursery. Matt also has an 'open kitchen' policy to encourage parents to discuss with him the food he is cooking and to ask his advice on any food-related issues. Parents frequently knock on the door to discuss foods their children like or dislike and to ask for recipes that they can use at home. Matt sometimes gives a demonstration of how to prepare a vegetable (for example, butternut squash) that a parent is unfamiliar with.*

#### **Nutrition and cookery courses for parents (Brough nursery)**

*For the previous two years, Matt has offered a free six-week nutrition and cookery course for parents, with one evening session each week. Matt aims to provide parents with examples of recipes that are easy to cook for their children, which can fit in with their everyday life (for example they are quick and can be pre-prepared and frozen if necessary). Parents learn about early childhood nutrition and child-sized portions. This is important as the nurseries frequently hear from parents who are concerned their child is not finishing their meal, and then discover that the parents are providing adult-sized portions.*

*The nursery also holds open days for parents in the local area, where they can attend a cooking demonstration. Brough nursery recently hosted a 'seafood week' with activities on offer including a 'big cook day' where parents can observe Matt fillet a fish and make salmon fishcakes.*

#### **Brough nursery intake**

*The intake at Brough nursery splits roughly between 90 per cent privately funded places and 10 per cent local authority-funded nursery places (including funding for 3–5-year-olds and 2-year-olds). Brough nursery also has strong links with local children's centres and receives referrals for children in crisis, who may have a six-week nursery place funded by the local authority. Therefore, while the majority of nursery places at Brough nursery are privately funded, children whose parents might not be able to pay for a nursery place are also benefiting from all the healthy eating activities and nutrition education on offer.*

### **Case study 7 Using the Ten Steps for Healthy Toddlers in Pre-school Learning Alliance settings**

#### **Background**

*The Infant and Toddler Forum is an independent group of health and childcare professionals who specialise in early years nutrition and development, which is funded by a grant from Danone UK.<sup>369</sup> In 2010 the Infant and Toddler Forum launched a guide for parents and practitioners called *Ten Steps for Healthy Toddlers*, which sets out a series of principles on how best to encourage a healthy diet and healthy eating behaviours for toddlers.*

*In 2011 the Pre-School Learning Alliance<sup>370</sup> (an educational charity and voluntary sector provider of 117 registered childcare settings in England) introduced *Ten Steps for Healthy Toddlers* as good practice guidance for its staff. The Pre-School Learning Alliance and the Infant and Toddler*

*Forum agreed that they would evaluate the impact of introducing this learning tool in Alliance settings.*

#### **The Ten Steps for Healthy Toddlers**

*The Alliance modified the ‘Ten Steps’ document (which was originally prepared as a guidance tool for parents) to make it suitable to practitioners working in early years settings. The ‘Ten Steps’ agreed for early years practitioners to use with toddlers and their parents were:*

- 1 *Eat with the children in your key groups and make mealtimes relaxed and happy occasions.*
- 2 *You decide which nutritious foods to offer, taking account of individual dietary needs, but let children decide how much to eat.*
- 3 *Offer foods from all five food groups each day.*
- 4 *Have a routine and offer three meals and two to three snacks over the whole day.*
- 5 *Offer children six to eight drinks over a whole day.*
- 6 *Encourage parents to give vitamins A and D each day.*
- 7 *Respect children’s tastes and preferences – don’t force feed.*
- 8 *Reward young children with your attention – never give food or drink as a reward, treat or for comfort.*
- 9 *Limit... and avoid [unhealthy foods].*
- 10 *Encourage physical activity for at least three hours every day and about 12 hours’ sleep.*

*These modified ‘Ten Steps’ were then adopted within the Alliance early years settings. Each setting committed to a package of activity and the Alliance’s five quality and practice managers provided mentoring and support to help the settings adopt this tool. Each provider trained its staff in using the ‘Ten Steps’ and the Infant and Toddler Forum provided online information and training resources for practitioners to download and use.*

### **Evidence of impact**

*Alliance practitioners were invited to complete a baseline survey when the project was initiated in 2011 and six months later a follow-up survey was issued to capture their experiences in implementing the ‘Ten Steps’; 32 managers of Alliance settings completed the baseline survey and 23 setting managers completed the follow-up survey.*

### **Staff experiences with using the ‘Ten Steps’**

*Practitioners’ experiences in implementing the ‘Ten Steps’ appeared to be very positive: the follow-up survey found that nearly three-quarters (17/23) of managers thought staff were more confident in dealing with feeding issues; around two-thirds (15/23) said children were more involved with mealtimes as a learning experience; half (11/23) said they were better equipped to cope with challenging behaviours around mealtimes; and nearly two-thirds (14/23) felt better equipped to work with children who had food allergies.*

*The follow-up survey also found that:*

- just over three-quarters (18/23) of managers had seen an improvement in staff being aware of children’s food preferences and respecting a child’s decision when they had eaten enough*
- more than three-quarters (18/23) of managers had seen improvements in interaction between staff and children at mealtimes*
- just under three-quarters (17/23) of managers had seen an improvement in staff providing a regular routine of mealtimes and snacks*

*Managers also felt more confident in working with children and their parents to tackle feeding challenges. By the follow-up survey, 27 per cent of managers felt more confident in advising parents on coping with feeding challenges at home; there was a reduction of 18 per cent in the number of managers who felt they needed more training in coping with feeding challenges in the setting; and a reduction of 24 per cent in the number of managers who felt they needed more training to answer parents’ queries about feeding challenges.*

**Parents' responses to the 'Ten Steps'**

*Nearly three-quarters (17/23) of responding managers has received some kind of response from parents about the 'Ten Steps', none of which were negative; 16/23 staff were aware of parents using the 'Ten Steps' as a result of the programme and nearly half of the managers (11/23) said that parents had engaged with staff on the subject of food and physical activity.*

**Improved feeding behaviours among children**

*Setting managers were also asked about whether children's feeding behaviours had improved as a result of implementing the 'Ten Steps'. When responses to the baseline survey were compared to responses to the six-month follow-up survey, they showed that 14 per cent of respondents thought mealtimes were more calm and sociable occasions; there was an 8 per cent decrease in perceptions of challenging behaviour at mealtimes; a 7 per cent decrease in the perception that mealtimes were a challenging time for staff; and an 18 per cent decrease in managers identifying fussy eating among children.*

**Conclusion**

*This initial, small-scale evaluation suggests that the 'Ten Steps for Healthy Toddlers' is a promising tool to support early years practitioners to work with young children and their parents to support healthy eating. Further independent evaluation of the tool in other types of setting would be useful to build stronger evidence of its impact and wider applicability.*

**Recommendation 11: The Department of Health and Department for Education should build the evidence base on effective interventions to improve early childhood nutrition and provide information and guidance to health and wellbeing boards and other local commissioners**

In addition to universal services of the kind discussed above (such as health visiting, children's centres and nurseries), more intensive and targeted interventions are needed to support families experiencing greater problems with nutrition, such as those with a child who is overweight or obese. A preventative approach to improving nutrition would offer support to families as soon as a child becomes overweight, or shows evidence of being malnourished. However, not enough is yet known about what works in improving nutrition in pre-school aged children and very few evidence-based interventions are available for local authorities to commission.<sup>371</sup>

As case study 1 in chapter 9 demonstrated, some interventions are currently being developed to tackle obesity in pre-school children (the CHERRY programme currently being tested by UCL researchers in children's centres in Islington and Cornwall is another example<sup>372</sup>). However, these tend to be fairly intensive interventions aimed at tackling obesity, which require a substantial time commitment from parents and children. There is little evidence of the effectiveness of lighter-touch preventative interventions, such as 'weaning workshops' or fussy eating workshops in improving early childhood nutrition and preventing poor health outcomes, although our research suggests that these types of service are popular with parents.

Greater availability of evidence-based models for improving early childhood nutrition and preventing child obesity and malnourishment will be essential if health and wellbeing boards are to fulfil their public health functions effectively (discussed above in recommendation 8) and commission evidence-based preventative programmes to improve family diets. Therefore, Demos recommends that the Department of Health and Department for Education should invest in building the evidence base on effective interventions to improve early childhood nutrition and reduce the risk of childhood obesity. The National Institute for Health Research's recent call

for research proposals on the subject of nutrition in the early years is welcome evidence that this is an increasing focus in public health policy.

The Department of Health and in due course Public Health England also have an important role to play in publicising effective preventative interventions to health and wellbeing boards and assisting local authorities to share good practice in supporting good early childhood nutrition.





## 11 Conclusion

This report explores why early childhood nutrition is an important issue for policymakers to consider, and provides a variety of evidence showing that too many young children's nutritional needs are not currently being met, with long-term consequences for their future health, development and attainment.

In recent years the Government has increased its focus on encouraging and supporting mothers to breastfeed and on improving the quality of food provided in early years settings and schools. However, strategies for improving nutrition in the home for pre-school age children are still under-developed and the parent's role in teaching babies and young children healthy eating behaviours has received little attention. Perhaps the home environment is viewed as being too difficult a nut to crack, while early education settings are easier to influence and regulate. As a result, instead of practising early intervention to support all parents to make healthy choices for their babies and toddlers from the very start, we tend to reserve support with healthy eating for families whose children are already demonstrating nutritional problems, typically once a child is identified as being overweight or obese and at risk of long-term health problems.

Policymakers and practitioners might assume that parents will be resistant to receiving advice on such a common-sense subject as nutrition. However, the research undertaken for this report has identified a clear desire from parents for easier access to information and support with early childhood nutrition. They are keen to ensure that their children receive a good nutritional start in life and are concerned about the social stigma associated with childhood obesity.

Although parents want to get nutrition right for their children, this research found that many parents are very unconfident about choosing appropriate foods for babies and

toddlers, getting portion sizes right and preparing healthy meals. They are also frustrated by the unclear and contradictory advice they receive from a plethora of sources and the difficulty involved in finding reliable advice on subjects such as introducing solid food for the first time, coping with food allergies, and managing fussy eating.

Most parents who participated in this research felt that the lack of support and advice on nutrition grew worse as their children got older, as the more intensive support available from health visitors following the birth of a child falls away and they do not know where they should go for advice on nutrition for toddlers and older children. However, a small number of mothers participating in the research workshops for this project also felt they had been let down in the first weeks and months of their baby's life when they had needed help with establishing breastfeeding and this was not forthcoming.

This report demonstrates that early childhood nutrition is an issue that cuts across the responsibilities of the Department of Health and the Department for Education, demanding a joined-up policy approach that makes use of the considerable health and early years infrastructure spread across the country. Central government has an important leadership role to play in developing the evidence on what works in improving nutrition in the early years, while it is up to local health and early years commissioners to ensure that parents can access the information and support that they need at a local level. However, it was also clear from this research that public services are not the only sources of advice that parents want to access. In fact, online parenting forums, food packaging, retailers and baby food brands are all valued sources of information on nutrition for parents. Therefore, it is essential that these varied actors find ways of working together more effectively to provide more consistent, evidence-based messages to parents about how they can provide their babies and young children with the nutritional foundations that they need.

# APPENDICES



## Appendix A Expert interviews

Demos conducted expert interviews with the following people:

- Jonathan Savage, policy adviser, Child Wellbeing and Welfare Team, Department for Education
- Sue Robb, Head of Early Years, 4Children
- June O'Sullivan, Chief Executive, London Early Years Foundation
- Ruth McConnell, Strategic Brand Manager, Morrisons
- Pauline Watts, Professional Officer for Health Visiting, Department of Health
- Dr Rachel Pryke, Clinical Champion, Nutrition for Health, Royal College of GPs
- Jill Rutter, Head of Research, The Daycare Trust
- Dr Pauline Emmett, Senior Research Fellow, Centre for Child and Adolescent Health, University of Bristol
- Claire Schofield, Director of Membership, Policy and Communications, National Day Nurseries Association
- Neil Leitch, Chief Executive, Pre-School Learning Alliance
- Louis Levy, Nutrition Branch, Department of Health
- Ruth Pimentel, Chief Executive, Toad Hall Nursery Group
- Ina Chandler-Brown, Infant and Toddler Forum
- Dr Mary Fewtrell, Reader in Childhood Nutrition, Institute of Child Health, UCL
- Jillian Pitt, Nutrition & Health Advisor, Food for Life Partnership, Soil Association
- Dr Gillian Harris, School of Psychology, University of Birmingham
- Dr Lucy Cooke, Health Behaviour, UCL
- Marg Randles, Managing Director, Busy Bees nurseries
- Jacqui Lowdon, Chair of the Paediatric Group, British Dietetic Association

Dr Rebecca O’Connell, Faculty of Children and Learning,  
Institute of Education, University of London

Julie Lanigan, Specialist Research Dietitian, Institute of Child  
Health, UCL

Neil Paterson, Maternity Services and Starting Well, Department  
of Health

Angela Walker, Healthy Start, Department of Health

Professor Richard Watt, Department of Epidemiology and  
Public Health, University College London

# Appendix B Research workshops

## Workshop locations

The research workshops were held in children's centres in the following locations:

- Romford
- Knowsley
- Gateshead
- Wigan

## Demographic data on participating parents

Table 8 **Age group of parents**

Age group	No of parents
19 or under	5
20-25	6
26-30	6
31-35	3
36-40	3
41-50	2

Table 9 **Gender of parents**

Gender	No of parents
Male	2
Female	23

Table 10 **Ethnicity of parents**

Ethnicity	No of parents
White, British	21
White, Irish	0
Any other white background background	1
Asian/British Asian - Indian	1
Asian/British Asian - Pakistani	0
Asian/British Asian - Bangladeshi	0
Any other Asian background	0
Black/Black British - Caribbean	0
Black/Black British - African	2
Any other black	0
Chinese	0
Other background	0
Prefer not to say	0

Table 11 **Relationship status of parents**

Relationship status	No of parents
Single	11
Married	6
Cohabiting with partner	5
In a relationship not cohabiting	1
Other	2

Table 12 **Number of children parents had**

No of children	No of parents with this many children
1	17
2	4
3	2
4	2



Table 13 **Age of parents' youngest child**

Age of youngest child (years)	No of parents
0-1	6
1-2	6
2-3	8
3-4	2
4+	3

Table 14 **Highest educational qualification of parents**

Qualification	No of parents
O level or GCSE	9
A or AS level	1
Diploma in higher education	5
Undergraduate degree	5
Postgraduate degree	2
Other	2
None of these	1

Table 15 **Current employment status of parents**

Employment status	No of parents
Working in a full-time job	5
Working in a part-time job	4
On maternity, paternity or parental leave	2
Self-employed	
Full-time student	1
Part-time student	1
Looking after home and family	11
Other	1



# Appendix C Technical appendix

This appendix includes explanatory information to support the findings from the secondary analysis of the Millennium Cohort Study (MCS) presented in chapter 2. It also provides supportive information on sample sizes and more detailed findings from the Bounty Word of Mum survey.

## Millennium Cohort Study

### Sample size and missing data

The sample size for the MCS as a whole varies between the individual survey years:

- In wave 1 (2001–03), 18,552 families took part (11,533 in England, 2,760 in Wales, 2,336 in Scotland and 1,923 in Northern Ireland), with 18,818 individual cohort children.
- In wave 2 of the survey (2004/05) 15,590 families took part, with 15,808 individual cohort children.
- In wave 3 of the survey (2006/07) 15,246 families took part, with 15,459 individual cohort children
- In wave 4 of the survey (2008) 13,857 families took part, with 14,043 individual cohort children.<sup>373</sup>

The only cases excluded from our analyses were those that did not provide an answer for one of the required variables, which are considered ‘missing values’. The sample in each analysis therefore represents the full sample of answering respondents. In the findings section, we will specify the sample size for each of the analyses.

### Dependent or outcome variables

The main outcomes that were included in the analysis were the child's weight (according to body mass index or BMI), the child's social and emotional development, and the child's cognitive development. The weight variables are explained in chapter 2.

### Social and emotional development

The Strengths and Difficulties Questionnaire (SDQ) has five categories, each with five individual questions. The five categories are:

- 1 the emotional symptoms scale
- 2 conduct problems
- 3 the hyperactivity scale
- 4 peer problems
- 5 the pro-social scale

The SDQ 'Total Difficulties Score' is the sum of categories 1–4 (excluding category 5). The same question codes are used in waves 2, 3 and 4 of the survey.

Replies that negative or adverse statements are 'certainly true' score 2, 'somewhat true' score 1 and 'not true' score 0. The reverse applies to positive statements, which have an asterisk beside them below.

- 1 Emotional symptoms scale
  - i Child complains of headaches/stomach aches/sickness (question code: SDHS)
  - ii Child often seems worried (question code: SDMW)
  - iii Child is often unhappy (question code: SDUD)
  - iv Child is nervous or clingy in new situations (question code: SDNC)
  - v Child has many fears and is easily scared (question code: SDFE)

- 2 Conduct problems scale
  - i Child often has temper tantrums (question code: SDTT)
  - ii Child is generally obedient\* (question code: SDOR)
  - iii Child fights with or bullies other children (question code: SDFB)
  - iv Child can be spiteful to others (question code: SDCS)
  - v Child is often argumentative with adults (question code: SDOA)
- 3 Hyperactivity scale
  - i Child is restless, overactive, cannot stay still for long (question code: SDRO)
  - ii Child is constantly fidgeting or squirming (question code: SDFS)
  - iii Child is easily distracted, concentration wanders (question code: SDDC)
  - iv Child can stop and think before acting\* (question code: SDST)
  - v Child sees tasks through to the end\* (question code: SDTE)
- 4 Peer problems scale
  - i Child tends to play alone (question code: SDSP)
  - ii Child has at least one good friend\* (question code: SDGF)
  - iii Child is generally liked by other children\* (question code: SDLC)
  - iv Child is picked on or bullied by other children (question code: SDPB)
  - v Child gets on better with adults than with children (question code: SDGB)

### Cognitive development

There are two tests of cognitive development in the MCS at age 3 (MCS<sub>2</sub>), three tests at age 5 (MCS<sub>3</sub>) and three tests at age 7 (MCS<sub>4</sub>). As above, scores were dichotomised between the 40 per cent highest (best) scores and the 60 per cent lowest scores on these tests.

### *Age 3 (MCS2)*

There are two tests at this age:

- 1 BAS Naming Vocabulary test
- 2 Bracken School Readiness Assessment (composite score)

### *Age 5 (MCS3)*

There are three tests at this age:

- 1 BAS Naming Vocabulary test
- 2 BAS Pattern Construction test
- 3 BAS Picture Similarity test

### *Age 7 (MCS4)*

There are three tests at this age:

- 1 BAS Pattern Construction test
- 2 BAS Word Reading test
- 3 National Foundation for Educational Research (NFER) standard Progress in Maths (PiM) test.

## *Independent variables or regressors*

### *Feeds regularly*

In the first wave of the MCS, responding parents (usually mothers) were asked whether the cohort child at 9 months ‘wants and takes milk feeds at about the same time (from within one hour from day to day)’. In the second and third waves of the MCS, the parent was asked whether the child ‘has meals at regular times’. In each case, the possible answers ranged from ‘never or almost never’ to ‘always’ or ‘almost always’. For the purpose of this analysis, parents’ answers of ‘never’ or ‘sometimes’ were coded 0 and the answers ‘usually’ or ‘always’ were coded 1.

### *Eating breakfast daily*

In the third and fourth waves of the MCS, responding parents were asked ‘how many times a week does [cohort child] usually

eat breakfast?’ The possible answers ranged from nil times each week to seven times each week. For the purpose of this analysis, parents’ answers that ranged from nil to six times a week (not eating breakfast daily) were coded 0, with answers indicating that the child ate breakfast every day coded 1.

### *Fussy eating*

In the fourth wave of the MCS, responding parents were asked, ‘How would you describe the variety of foods that [cohort child] eats? Does he/she eat most things; eat a reasonable variety of things; or is he or she a fussy eater?’ If a parent responded that their child was a fussy eater, the response was coded 1. If the parent gave another answer, the response was coded 0.

### **Control variables or covariates**

The controls used in the regressions are presented in table 16.

Table 16 **Controls used in the regressions**

All regressions	Regressions involving cognitive development or social and emotional development
<ul style="list-style-type: none"> <li>· Mother’s ethnicity</li> <li>· Mother’s age</li> <li>· Mother’s level of education</li> <li>· Mother’s work status</li> <li>· Family income</li> <li>· Parents’ marital status</li> <li>· Child’s age</li> <li>· Child’s gender</li> <li>· Child’s ethnicity</li> </ul>	<ul style="list-style-type: none"> <li>· Is English the only language spoken in the household?</li> <li>· Does the child understand English?</li> <li>· How often is the child read to?</li> <li>· How often is the child read to?</li> <li>· How often does the child paint or draw at home?</li> <li>· Does anyone at home help the child with reading?</li> <li>· How often is the child helped with writing?</li> <li>· How often does the child visit the library?</li> </ul>

## Regularity of feeding: full results table

Table 17` Correlation between 'feeds at same time every day' at MCS waves 1, 2 and 3

		Correlations		
		S1: Milk feeds at about the same time	S2: Child has regular meal times	S3: CM eats at regular times
S1: Milk feeds at about the same time	Pearson Correlation Sig. (2-tailed) N	1  17,914		
S2: Child has regular meal times	Pearson Correlation Sig. (2-tailed) N	.127** .000 14,340	1  15,438	
S3: Whether CM eats at regular times	Pearson Correlation Sig. (2-tailed) N	.090** .000 14,176	.295** .000 13,644	1  15,172

\*\* . Correlation is significant at the 0.01 level (2-tailed).

A significant relationship was found between feeding regularly at Wave 1 and Wave 2 ( $p < .0001$ ), though the correlation coefficient ( $r = .127$ ) indicates a rather weak, but positive relationship. This suggests that there is a weak relationship between receiving milk at regular times at Wave 1, and having regular meal times at Wave 2.

A significant relationship was also found between Wave 2 and Wave 3 ( $p < .001$ ), with a moderate and positive relationship between eating at regular times at Wave 2 and Wave 3 ( $r = .295$ ). This would be expected, given the nature of meal times for children at these ages. (See table 17.)

The relationship between regular feeding at Wave 1 and eating at regular meal times in Wave 3 was also significant ( $p < .001$ ), though this was the weakest relationship at  $r = .090$ . However, as this relationship spanned over eight years, it is to be expected that the strength would decrease. (See table 17.)



## The Bounty Word of Mum survey

### Background information

- Bounty's Word of Mum omnibus surveys are run bimonthly from January until November each year.
- Members of the Bounty club have been invited to become Word of Mum panellists and participate in surveys regularly.
- The Word of Mum panel is managed by EasyInsites on behalf of Bounty. EasyInsites send emails to Word of Mum panellists with an invitation to click on a link and participate in our surveys.
- The July Word of Mum omnibus survey was carried out between 12 and 31 July 2012.
- A total of 1,824 interviews were carried out, among women in the early stages of pregnancy through to mums with a youngest child aged 2 years

### Sampling information

#### *Gender*

100 per cent of survey respondents were female.

#### *Age*

Respondents fell into the following age categories:

- 16–25 years: 9.3 per cent
- 25–34 years: 65.3 per cent
- 35–44 years: 25.1 per cent
- 45–54 years: 0.27 per cent
- 55+ years: 0 per cent

#### *Whether mother with other children or first-time mother*

- Mother with other children: 40.9 per cent
- First-time mother: 59.1 per cent

### *Number of children*

The number of children respondents had was as follows:

- 1 child: 23.8 per cent
- 2 children: 55.2 per cent
- 3 children: 15 per cent
- 4 or more children: 6 per cent

### *Ethnic origin*

The respondents' ethnic origin was as follows:

- White (British): 81.7 per cent
- White (other): 11.1 per cent
- Afro-Caribbean: 0.7 per cent
- African: 1.1 per cent
- Middle Eastern: 0.05 per cent
- Indian: 1.8 per cent
- Pakistani: 1.2 per cent
- Bangladeshi: 0.2 per cent
- Other: 2.4 per cent

### *Current working status*

The current working status of the respondents was as follows:

- Stay at home mum: 27.7 per cent
- Working full-time: 16.8 per cent
- Working part-time: 20.8 per cent
- On maternity leave: 33 per cent
- Other: 1.3 per cent

### *Current family situation*

The current family situation of respondents was as follows:

- a parent on my own: 5.9 per cent
- a parent living with a spouse or partner who is the parent of my children: 89 per cent
- a parent living with a spouse or partner who is not the parent of my children: 3.9 per cent
- a parent living without a spouse or partner but with another family member: 1.2 per cent

*Region*

Table 18 shows the number of participating mothers by UK region.

Table 18 **Number of participating mothers by UK region**

Region (UK)	No of participating mothers
East of England	206
London	124
Midlands	278
North East or Yorkshire	218
North West	138
South East	365
South West	179
Wales	75
Scotland	108
Northern Ireland	21
Not sure	5
Not coded	111
Total	1,828

*Social grade classification*

Table 19 shows the number of participating mothers by social grade.

Table 19 **Number of participating mothers by social grade**

Social grade	No of participating mothers
AB	605
C1	519
C2	313
DE	272
Not coded	119
Total	1,828

Table 20 Full findings on challenges that parents face in Bounty's Word of Mum survey

Agreement with statement	Agree	Agree slightly	Neither agree or disagree	Disagree slightly	Disagree strongly	Don't know
	%	%	%	%	%	%
I do not have time to prepare the foods I would like to for my baby/toddler	8	28	10	17	36	-
I do not know how to prepare home cooked foods for my baby/toddler	3	8	9	16	65	-
I am not very confident about preparing food for my baby/toddler	5	15	8	19	53	-
I cannot always afford to buy the foods or vitamin supplements I would like to for my baby/toddler	9	18	14	18	39	2
It is difficult to buy foods for my baby/ toddler as the food available in my local area is not suitable for a baby/toddler	2	6	13	18	60	2
I am not sure which foods are healthy for my baby/toddler to eat	2	11	8	23	54	-
I am not sure about the correct portion sizes for my baby/toddler	14	36	11	16	23	-
My baby/toddler wants to eat foods that I do not think are suitable for him/her	6	26	17	15	34	2
I worry that my baby/toddler is underweight	3	10	12	14	60	1
I worry that my baby/toddler is overweight	1	9	13	13	63	1

## Appendix D Social grade classification

Social grading is derived from the British National Readership Survey and is frequently used in market research. A summary of the social grading classification is presented in table 21.<sup>374</sup>

Table 21 **Summary of the social grading classification used in the British National Readership Survey**

Social grade	Description
A	High managerial, administrative or professional
B	Intermediate managerial, administrative or professional
C1	Supervisory, clerical and junior managerial, administrative or professional
C2	Skilled manual workers
D	Semi and unskilled manual workers
E	State pensioners, casual or lowest grade workers, unemployed with state benefits only



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- 73 Other significant predictors included the child's gender, the mother's age, the parents' marital status, the mother's educational level, the mother's employment, how often the child paints at home and how often the child is read to. The model is significant at  $p < .0001$ .
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- 172 The percentages represented in figure 8 are rounded to the nearest whole number. Values for mothers who were not assigned a social grade (60 mothers out of the total 1,047 who answered this question) are not included in this figure.
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- 192 Options for response included ‘agree strongly’, ‘agree slightly’, ‘neither agree nor disagree’, ‘disagree slightly’, ‘disagree strongly’ and ‘don’t know’. Figure 13 illustrates the proportion of those in each age group that selected ‘agree strongly’ or ‘agree slightly’ for each statement. The 45–54 age group is not included in this figure as the small sample size does not allow for meaningful comparison.
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*Giving mums more.*

The principle of ‘early intervention’ – that it is more effective to intervene to prevent a social problem, than to react once a problem becomes manifest – is now so widely accepted that it is almost a policy cliché. A series of independent reviews commissioned by the UK Government, including those by Frank Field MP, Graham Allen MP and Dame Clare Tickell, have all highlighted the importance of the pre-school years as a crucial developmental phase. However, despite this welcome emphasis on the early years, there is still too little focus on the role of early nutrition. Where there have been measures to improve early nutrition, these have often missed parents’ vital role in feeding their young children.

This report reveals the challenges that parents experience in feeding their young children, with half of parents feeling confused about portion sizes and one-fifth of parents feeling unconfident about preparing food for babies or toddlers. It also found that many parents are concerned about a lack of information on subjects such as weaning and toddler nutrition, or have received confusing or conflicting advice. Contrary to assumptions that nutrition might be considered a ‘common sense’ issue by parents, this report finds that they would welcome better access to clear and consistent advice on nutrition for young children.

The report demonstrates the importance of nutrition to children’s subsequent health and development and so advocates a central role for early childhood nutrition in early years and public health policy. It recommends a joined-up policy approach that makes use of the substantial infrastructure of nurseries, children’s centres and health services to provide consistent and reliable advice to parents on nutrition. The report also finds that food packaging, retailers and online parenting clubs and forums are all important influences on feeding decisions. Therefore, the government must work together with these groups to support parents to make healthier food choices for their babies and toddlers.

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ISBN 978-1-909037-26-7 £10

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