



OPEN ACCESS

# A qualitative study of uptake of free vitamins in England

Tricia Jessiman,<sup>1</sup> Ailsa Cameron,<sup>1</sup> Meg Wiggins,<sup>2</sup> Patricia J Lucas<sup>1</sup>

<sup>1</sup>School for Policy Studies, University of Bristol, Bristol, UK  
<sup>2</sup>Social Science Research Unit, Institute of Education, University of London, London, UK

## Correspondence to

Tricia Jessiman, School for Policy Studies, University of Bristol, 8 Priory Road, Bristol BS8 1TZ, UK; Tricia.Jessiman@bristol.ac.uk

Received 15 February 2013  
Revised 18 April 2013  
Accepted 23 April 2013  
Published Online First 23 May 2013

## ABSTRACT

**Objective** To identify reasons why eligible families are not accessing free 'Healthy Start' vitamin supplementation (providing vitamins A, C and D) in England.

**Design** Qualitative study using in-depth interviews.

**Setting** 13 primary care trusts in England.

**Participants** Purposive sample of 15 Healthy Start coordinators, 50 frontline health and children's professionals and 107 parents.

**Results** Vitamin take-up was low across all research sites, reported as below 10% of eligible beneficiaries for free vitamins. Reasons identified by both parents and professionals included (1) poor accessibility of vitamins, (2) low promotion of the scheme by health professionals, (3) a lack of awareness among eligible families, and (4) low motivation among mothers to take vitamins for themselves during pregnancy or for children under 4 years old.

**Conclusions** Low uptake rates can be explained by poor accessibility of vitamins and lack of awareness and motivation to take vitamin supplements among eligible families. Universal provision (at least for pregnant women) and better training for health professionals are identified as potential solutions worthy of further research and evaluation.

## INTRODUCTION

Current UK recommendations are that pregnant and breastfeeding women and young children (usually after 6 months of age) should take vitamin supplements.<sup>1–3</sup> In the UK, free vitamins should be available to low income pregnant and new mothers and young children through the Healthy Start (HS) Scheme. This scheme provides low-income families in the UK with fixed-value food vouchers and vitamin coupons for eligible women and young children.<sup>1</sup> Vitamin coupons can be exchanged for branded HS vitamin tablets for women (70 µg vitamin C, 10 µg vitamin D and 400 µg folic acid daily during pregnancy, and one year postpartum) and drops for children (233 µg vitamin A, 20 µg vitamin C, and 7.5 µg vitamin D3 daily between 6 and 48 months).

These HS vitamins represent an important public health intervention. Current UK guidance for NHS and other professionals who have a role in the nutrition of pregnant and breastfeeding mothers include that they should offer HS vitamin supplements to pregnant women who are (or who may be) eligible, and HS vitamin supplements to all children aged 6–48 months in families receiving the HS benefit.<sup>3</sup>

However, most families registered for the scheme do not use them. The 2010 UK Infant Feeding

## What is already known on this topic

- ▶ Current UK guidance is that vulnerable groups of pregnant and breastfeeding women and young children should take vitamin supplements (including vitamins A, C and D) to protect against the greater risk of birth defects and poor health outcomes in later life.
- ▶ Surveys of health professionals consistently show low awareness of the current UK guidelines around vitamin supplementation for pregnant mothers and young children.
- ▶ Uptake of free vitamin supplements for low income families in the UK (pregnant mothers and children under four years) among eligible families is low.

## What this study adds

- ▶ This qualitative study suggests low uptake of free vitamins among eligible families is due to poor access to vitamins, low awareness of their availability, and or the need for vitamin supplementation, and lack of motivation.
- ▶ The few examples of vitamin use were supported by universal provision which avoided the need for assessment of eligibility, removed barriers to access by allowing them to be handed directly to mothers, and meant midwives and health visitors were endorsing their use.
- ▶ Universal provision, better access to vitamins in health centres and high-street outlets, and better training for frontline health professionals are identified as potential solutions to low uptake.

Survey reports that 30% of breastfeeding HS-registered mothers were taking HS vitamins when the infant was 4–10 weeks old, rising to 44% at 8–10 months; 13% of registered mothers were giving the child HS vitamin drops at 4–6 months, rising to 19% at 8–10 months.<sup>4</sup> These figures are higher than for the general population, but still low, in particular for infant children (and may be lower still for older children).

In recent years, there has been particular concern about vitamin D levels among children in the UK, and the rise in vitamin D deficiency disease, presenting as rickets, symptomatic hypocalcaemia and motor delay.<sup>5–12</sup> Vitamin D is hard to source through



Open Access  
Scan to access more  
free content

**To cite:** Jessiman T, Cameron A, Wiggins M, et al. *Arch Dis Child* 2013;**98**:587–591.

**Table 1** Characteristics of selected PCTs

PCT sample criteria	Total PCTs in sample (n=13)
Indices of deprivation*	
Low	5
High	8
Fruit and vegetable consumption in children†	
Significantly below national average	5
Same or above national average	8
Urban/rural‡	
>50% rural	1
10–49% rural	6
Urban	6
Proportion of black and minority ethnic groups§	
>Average non-white	6
>20% non-white (subgroup)	3
% take-up of HS vouchers¶	
<75%	6
≥75%	7

\*We used the Indices of Deprivation 2007 to rank the average score for each PCT. 'High' and 'low' indicates whether they are above or below the mid-rank. <http://webarchive.nationalarchives.gov.uk/20100410180038/http://communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>.

†Taken from *Model-Based Estimates and CIs for the Prevalence of 3+ Daily Fruit and Vegetable Consumption in Children over England*, by PCO developed by the NHS Health and Social Care Information Centre.

‡Taken from the urban–rural classification of PCTs (post-October 2006 boundaries) published by the Association of Public Health Observatories.

§2001 UK census data.

¶Taken from monitoring data provided by the Department of Health for a 4-week period in Jan/Feb 2011. Uptake ranged between 59% and 84%, 75% is the point at which approx 1/2 of PCTs were above, and below.

diet alone; 90% comes from exposure to sunlight.<sup>13</sup> If the mother's vitamin D status is low during pregnancy, the infant will also have low levels.<sup>14</sup> Estimates consistently show that the majority of UK children aged between 1.5 and 3 years do not get their daily reference nutrient intake of vitamin D.<sup>15–18</sup> One recent study reports that supplying HS vitamins to all pregnant women and young children resulted in a substantial reduction in symptomatic vitamin D deficiency in children in one primary care trust (PCT), where 75% of the population were from ethnic minority groups particularly at risk of vitamin D deficiency.<sup>19</sup>

This paper reports on research with parents and professionals with the aim of understanding why the provision of free HS vitamins has not resulted in higher levels of use among low income families in England.

## METHODS

This was a qualitative study using in-depth interviews to collect data from parents, HS coordinators and frontline health and children's professionals. Fieldwork took place between May 2011 and February 2012. We use the consolidated criteria for reporting qualitative research (COREQ) to describe the study methods.<sup>20</sup>

Participants were recruited from 13 purposively selected PCTs across England (sampling criteria are shown in table 1). Within each PCT, we aimed to recruit the local lead for the implementation of HS, five health and children's professionals, and 10 parents from within one postcode area. Our sampling criteria for parents aimed to achieve variation in HS eligibility and application status (to include current users, participants who were eligible (based on income) but had never applied; previous users of the scheme, and applicants who believed themselves eligible but had not received coupons). Additional criteria included

age of youngest child (as a proxy indicator for vitamin use in pregnancy; during breastfeeding stage, and with toddlers), number of children in the household, ethnicity and age (in particular, mothers <18 years). Most parents were recruited face to face at health and children's centres, and asked about use of HS to determine eligibility for study inclusion. This was supplemented with direct contact by letter then telephone to recruit parents who may be infrequent users of health and children's services (using HS management information).

Respondents were provided with information about the research before the interviews were undertaken.

Most interviews were conducted face to face, but participants were offered telephone interviews if preferred. Most interviews were carried out by one of the authors, all of whom are female and have at least 10 years experience in conducting qualitative research. Written consent was obtained during face-to-face interviews, or electronically where the respondents requested telephone interviews. Detailed topic guides were developed and piloted with both professionals and parents prior to the interviews. Interviews with coordinators and frontline professionals focused on their experience of managing and implementing HS, reaching HS-eligible families (and barriers to doing so), use of HS resources and training, and the impact of the scheme on other work and on beneficiaries. The topic guide for families explored knowledge of the HS scheme, experiences of applying for and using the scheme, family diet and nutrition, sources of advice and their views about the scheme. Interviews with professionals lasted between 30 and 90 min; interviews with parents between 20 and 60 min.

All parents who took part in an interview were given a £5 voucher by way of thanks for their time.

## Analysis

All interviews were digitally recorded to ensure accuracy and allow review by the authors. We developed a set of draft analytic frameworks that included the key themes and subthemes that emerged from the data, as well as those relating to study objectives and research questions.<sup>21</sup> Separate frameworks were used for data from parents, coordinators and frontline professionals. Drafts were tested with a small number of interview data. Once finalised, they were used to code the data, providing us with a detailed and accessible overview of the data populating each theme and subtheme from every respondent. This data management approach afforded the possibility of exploring the data by both theme and respondent type.<sup>22</sup> All authors were involved in coding the data.

## RESULTS

We interviewed 15 HS coordinators, 50 frontline professionals and 107 parents. Eighty parents were recruited face to face at health or children's centres, and interviewed there or in their own homes; the remainder were telephone interviews. Seventeen parents approached in health or children's centres who met our selection criteria chose not to take part, and a further 67 were unreachable from HS records (39 no response, 28 incorrect phone number) and 10 refused to take part in a phone interview.

Details of the research PCTs and achieved sample of HS coordinators, professionals and parents are provided in tables 1–3.

## Uptake of HS vitamins

Data provided by the Department of Health showed that estimated take-up of the HS scheme (parents who have registered with the scheme to receive food vouchers and vitamin coupons) was 78.4% across England in January 2011. Take-up is

**Table 2** Respondent sample across 13 research sites

Site number	HS coordinator (n=15)	Health professionals (n=41)	Non-health professionals (n=9)	Parents (n=107)
1	1	GP (2) Midwife (2) Health visitor (2)		9
2	1	Health visitor (3) Community health (1)	Children's centre receptionist (1) Children's centre senior project worker (1) Children's centre project worker (1)	6
3	2	Health visitor (2)	Children's centre family project worker (1)	9
4	1	Midwife (2) Health visitor (2)		6
5	1	Midwife (2) Health visitor (2)		8
6	1	Midwife (2) Health visitor (2)		12
7	2	Health visitor (2)		9
8	1	Midwife (1) Healthcare assistant (1) Dietician (1)	Children's centre outreach worker (1)	4
9	1	Health visitor (1) Community staff nurse (1) Community nursery nurse (1)		4
10	1	Health visitor (1) Midwife (1)	Children's centre manager (1)	7
11	1	Health visitor (2) Community staff nurse (1)	Early years practitioners (2)	17
12	1	Health visitor (2)		7
13	1	Midwife (2)	Parent education coordinator (1)	9

estimated by comparing HM Revenue and Customs records of likely entitlement to HS records of current beneficiaries. Average take-up in our 13 PCTs was 77.4%. However, HS coordinators reported that uptake of the free HS vitamins was low, below 10% of eligible beneficiaries in all research sites. This was confirmed in our interviews with parents; in our sample of 107, we spoke to only 12 women who reported taking HS vitamins for themselves or their children. We identified a number of barriers to accessing HS vitamins.

### Multiple steps to accessing HS vitamins

There are multiple obstacles a parent must negotiate to access free HS vitamins. First, they must know about, apply for, and be accepted onto the HS scheme. Thereafter, there is a short wait to receive food vouchers and vitamin coupons in the post. Parents must know about the vitamin supplements, believe they are helpful and necessary, and be motivated to take them in full and/or give them to their children. Finally, the coupon for the vitamins must be taken to a local exchange point, where vitamins must be available in sufficient supply. Data from all

respondent types indicated common problems at each of these key steps.

### HS applications and late access to vitamins

The Department of Health estimates of take-up indicate that perhaps one in five eligible families across England are not registered with HS and, hence, cannot access free vitamins. Our research suggested three reasons why this happens. First, not all midwives reported routinely checking eligibility with families at first contact in pregnancy (usually around 9 weeks gestation). Second, where parental circumstances change often or rapidly (eg, for those with insecure employment, or experiencing homelessness) the administrative load of moving in and out of the scheme means some groups fall off the scheme and do not reapply. Finally, parents are required to notify HS when their baby is born to confirm ongoing eligibility; some do not do this until they are withdrawn from the scheme necessitating reapplication (this seemed more common among mothers <18 years old).

Further, health professionals in several sites reported concerns that because they cannot countersign HS applications until 10 weeks gestation, mothers were unable to access free vitamins

**Table 3** Breakdown of parent recruitment by sampling criteria (n=107, categories not mutually exclusive)

	<18 years (n=8)	Black and minority ethnic (BME) (n=17)	White, non-British (n=4)	Eligible users (n=70)	Eligible non-applicants (n=11)	Applicants not in receipt (n=8)	Previous users (n=18)	2+ Children including pregnancy (n=56)
Pregnant (n=14)	0	5	0	10	2	0	1	10
Parents of ≤12 months (n=50)	7	5	2	29	4	7	10	24
Parents of 12+ months (n=43)	1	7	2	30	5	1	7	22

early enough. Allowing time for processing applications and posting coupons means eligibility for free vitamins cannot be confirmed until at least the second trimester and later, where applications are delayed. This problem was avoided in some sites piloting universal vitamin provision, where midwives would hand vitamins to pregnant women at first contact.

### Low awareness among parents and poor promotion of the scheme by health professionals

Many parents did not know about HS vitamins and did not notice the vitamin coupon that arrived in the post. Advice from health professionals was a motivating factor for the few parents in our sample using vitamins. However, few health professionals reported explicitly mentioning vitamins when promoting the HS scheme to parents. Similarly, parents often reported that no health professional had mentioned vitamins. Others were told by a midwife or health visitor that vitamin supplementation was unnecessary.

'I asked the midwife about vitamins whilst pregnant and the midwife said that if I was eating a healthy diet I wouldn't need them, but I went and got them anyway.'

(Mother of 6-month-old child)

In interviews with professionals explanations of this included: scepticism of the need for vitamins; limited knowledge about the recommended vitamin intake for infant children; not knowing where families could collect vitamins; and/or lack of trust in supplies (see below). Professionals also said that workload pressures and, for midwives in particular, lower frequency of appointments for multigravida women, meant there were limited opportunities for this kind of discussion.

Also because if the ladies are second or third time round, there are changes in how often we see them so it can be some time between visits, can be 15–16 weeks, that's a long time if they haven't had their vitamins... Unfortunately we do have very busy clinics and with the best will in the world we do sometimes forget to give out vitamins.

(Midwife)

Information and training for health and children's professionals on HS vitamin supplementation had taken place in just three of the 13 research areas.

### Poor accessibility of vitamins

HS vitamins are not available in high-street pharmacies or other shops in England. At the time of the study, PCTs had a statutory responsibility to make local arrangements for distribution of HS vitamins. Health and children's centres were the common distribution point for vitamins, but this was not always well known among frontline staff. HS coordinators reported ongoing problems with both the national and local supply chains. This meant that health professionals were less willing to promote vitamins to parents because they could not be sure that vitamins would be available. Some parents reported being incorrectly advised about where to collect them from:

We had the vitamin coupons and for ages and ages I was trying to find out where to get them from, I'd go to my doctors they'd say you have to ask your health visitor or the midwife. I went to Boots cos they was telling me they'd do them at pharmacies, and they were saying they'd never seen them before didn't know what I was on about... I think one of the midwives said no its the pharmacist you go to, so I went to the pharmacist and they said they'd never

seen this before I think it's your GP. So I went back to the GP and then I think one of them says it was Sure Start.

(Mother receiving HS, one child aged 10 months)

Some professionals also reported problems with using children's centres as vitamin distribution points for families who did not engage with children's centres for any other service.

It's the majority of our white families that don't go (to the children's centre), and it's literally across the road from them. It's like there's a barrier, they won't go.

(Health visitor)

Some parents reported their local distribution point was too far away or inconvenient for them to access.

In those three research sites that were piloting universal provision of free HS vitamins for pregnant women, midwives were able to hand vitamins directly to women rather than sending them to a collection point. This system was preferred by parents and professionals. Most of the pregnant women in our sample who reported taking HS vitamins had been handed them directly by their midwives.

### Parental motivation

There were some parents who did not want to take vitamins. Reasons for this included: believing that vitamins were unnecessary if they and their children had a healthy diet; good child health outcomes in previous pregnancies without the use of vitamin supplements; a dislike of taking tablets or drops; concern that the vitamins might cause ill health in children; and difficulties measuring the correct dosage with liquid drops. None of these parents had approached a health professional about these concerns.

### DISCUSSION

The HS scheme has been researched before,<sup>23–25</sup> but to date, this is the first qualitative study of perceptions of HS beneficiaries. This allows us to comment in particular on the factors influencing the scheme's impact on the uptake and use of HS-branded vitamins. This study indicates that the two most significant barriers to free HS vitamins are access and awareness.

Interviewed parents were most likely to use vitamins where they were handed out by health professionals in sites piloting universal provision. Additionally, health professionals in these areas were more likely to advise parents on vitamin supplementation and the provision of vitamins at booking appointments allowed vitamin uptake at the earliest opportunity in pregnancy. Further evaluation of universal provision pilots to determine their impact on vitamin uptake is recommended.

In this study, poor or limited advice from health professionals seemed to exacerbate the low awareness among parents of the need for vitamin supplementation in pregnancy and for young children. Many parents who knew about free supplements, but declined to use them, did not approach or discuss this with a health professional. Scepticism about the need for supplements and concerns about ill health have been replicated in studies of folic acid uptake before and during pregnancy.<sup>26–27</sup> All health professionals in the UK should be promoting HS vitamins through general practice and children's centres.<sup>28</sup> However, knowledge and attitudes about the need to take vitamins in pregnancy and during infancy is often weak among health professionals. Reports suggest that less than half the midwives and health visitors are aware of the current UK vitamin D guidelines for ages under 5 years, and recommend supplementation to parents.<sup>29–31</sup> Additionally, this study indicates that workload pressures and infrequent contact with mothers can also discourage them

from promoting HS vitamins. Better training for professionals is needed to address both the knowledge gap and ways of promoting the scheme to eligible women.

## CONCLUSIONS

This study interviewed health and children's professionals involved in the implementation of HS in England to identify reasons why eligible families are not accessing free vitamin supplementation. It found that low uptake rates can be explained by low awareness among parents and poor promotion of the scheme by health professionals; late access to vitamins; lack of accessibility of vitamins; and low motivation among mothers to take vitamins for themselves or for their children. Conversely, vitamin use was supported by: universal provision of HS vitamins to all pregnant women; better awareness among all frontline health and children's professionals; and clear promotion of HS vitamins by health professionals.

**Acknowledgements** We would like to thank Katie Hollingworth, Chloe Austerberry, Katherine Tyler and Shazia Basaria for assistance with research. Our advisory group for this project comprised Jenny Chen, Louise Condon, Jenny Ingram, Philippa Tay, Jane Powell, Jessica Williams who we thank for their advice and support, and particularly Janice Thompson for chairing. We thank those parents and professionals who took part in this research.

**Contributors** TJ designed research instruments, sampling criteria, undertook data collection, data analysis and drafted and revised the paper. She is guarantor. PL designed research instruments, undertook data collection, data analysis and drafted and revised the paper. She was the Principal Investigator for the study. AC undertook data collection, data analysis and revised the draft paper. MW undertook data collection, data analysis and revised the draft paper.

**Funding** This is an independent report commissioned and funded by the Policy Research Programme in the Department of Health, UK. All researchers are independent of the Department of Health, and the views expressed in the publication are those of the authors and not necessarily those of the Department of Health.

**Competing interests** None.

**Ethics approval** The study was submitted to the Social Care Institute for Excellence (SCIE) Social Care Research Ethics Committee and received a favourable review in January 2011 (REC number 10/IEC08/360). All authors have completed the Unified Competing Interest form at [http://www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) (available on request from the corresponding author) and declare: all authors had financial support from the Department of Health for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous 3 years; no other relationships or activities that could appear to have influenced the submitted work.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** We do not have permission to share data. The report of the wider study is available online at <http://www.bristol.ac.uk/sps/research/projects/completed/2013/rk7149/index.html>

**Sponsor involvement** The Department of Health commissioned the study and were consulted on study design, but had no involvement in: the collection, analysis and interpretation of data; the writing of the report; or the decision to submit the paper for publication.

**Open Access** This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>

## REFERENCES

- Department of Health. *Delivering a healthy start for pregnant women, new mums, babies and young children*. London, COI 2010.
- National Institute for Health and Clinical Excellence. NICE clinical guideline 62: Antenatal care. Issued March 2008. Last modified June 2012. NICE, 2008.
- National Institute for Health and Clinical Excellence. NICE public health guidance 11: Maternal and child nutrition. NICE, 2008.
- McAndrew A, Thompson J, Fellows L, et al. *Infant Feeding Survey 2010*. Health and Social Care Information Centre, 2012.
- Moy R, Sahota P, Cowbrough K, et al. *MIND THE GAP: Are the Current Vitamin Recommendations Meeting the Needs of the Under-5s in the UK?* London: Feeding for Life Foundation, 2011.
- Leaf AA. Vitamins for babies and young children. *Arch Dis Child* 2007; 92:160–4.
- Shaw NJ, Pal BR. Vitamin D deficiency in UK Asian families: activating a new concern. *Arch Dis Child* 2002;86:147–9.
- Callaghan AL, Moy RJ, Booth IW, et al. Incidence of symptomatic vitamin D deficiency. *Arch Dis Child* 2006;91:606–7.
- Allgrove J. Is nutritional rickets returning? *Arch Dis Child* 2004; 89:699–700.
- Dyer C. Prosecution of parents over baby's death raises controversy over diagnosing child abuse. *BMJ* 2012;344:e2932.
- London Borough of Islington v Chana Al-Alas, Rohan Wray, Jayda Faith Al-Alas Wray. Neutral citation number: 2012. EWHC 865 (Fam). [www.judiciary.gov.uk/media/judgments/2012/lb-islington-al-alas-wray-judgment-19042012](http://www.judiciary.gov.uk/media/judgments/2012/lb-islington-al-alas-wray-judgment-19042012).
- Lucas P, Cameron A, Jessiman T. Don't ignore the preventive message. *Rapid Response BMJ* 2012;344:e3386.
- Pearce S, Cheetham T. Diagnosis and management of vitamin D deficiency. *BMJ* 2010;340:b5664.
- Department of Health. Weaning and the Weaning Diet. Report on Health and Social Subjects 45. Norwich: HM Stationary Office, 1994.
- Nelson M, Erens B, Bates B, et al. *Low income diet and nutrition survey volume 3*. Food Standards Agency. The Stationary Office, 2007.
- Bates B, Lennox A, Prentice A, et al. *National diet and nutrition survey. Headline results from Years 1,2 and 3 (combined) of the Rolling Programme (2008/2009–2010/11)*. Department of Health and the Food Standards Agency, 2012.
- Bates B, Lennox A, Bates C, et al. *National Diet and Nutrition Survey: headline results from Years 1 and 2 (combined) of the Rolling Programme (2008/9–2009/10)*. Department of Health, 2011.
- Gregory JR, Collins DL, Davies PSW, et al. *National Diet and Nutrition Survey: Children aged 1 1/2 to 4 1/2 years*. Norwich: HM Stationary Office, 1995.
- Moy R, McGee E, Debelle G, et al. Successful public health action to reduce the incidence of symptomatic vitamin D deficiency. *Arch Dis Child* 2012; 97:952–4.
- Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349–57.
- Ritchie J. The application of qualitative methods to social research. In: Ritchie J, Lewis J, eds. *Qualitative research practice*. London: Sage 2003:24–46.
- Miles MB, Huberman AM. *Qualitative data analysis: an expanded sourcebook*. London: Sage, 1994.
- Hills D, Child C, Junge K, et al. *Healthy start. Rapid evaluation of early impact on beneficiaries, health professionals, retailers and contractors*. London: Tavistock & Symbia, 2006.
- Ford F, Fraser R, Wademan S, et al. Preliminary results of the effect of 'Healthy Start', a new food benefit, on the dietary behaviour of women during pregnancy and post partum in Sheffield, UK. *Proc Nutr Soc* 2008;67:OCE8E398.
- Ford FA, Mouratidou T, Wademan SE, et al. Effect of the introduction of 'Healthy Start' on dietary behaviour during and after pregnancy: early results from the 'before and after' Sheffield study. *Br J Nutr* 2009;101:1828–36.
- Barbour RS, Macleod M, Mires G, et al. Uptake of folic acid supplements before and during pregnancy: focus group analysis of women's views and experiences. *J Hum Nutr Diet* 2011;25:140–7.
- McGovern E, Moss H, Grewal G, et al. Factors affecting the use of folic acid supplements in pregnant women in Glasgow. *Br J Gen Pract* 1997; 47:635–7.
- Shribman S, Billingham J. *Healthy child programme—pregnancy and the first five years*. Department of Health, 2009.
- Cleghorn S. Do health visitors advise mothers about vitamin supplementation for their infants in line with government recommendations to help prevent rickets? *J Hum Nutr Diet* 2006;19:203–8.
- Jain V, Raychaudhuri W, Barry W. A survey of healthcare professionals' awareness of vitamin D supplementation in pregnancy, infancy and childhood—midwives, gps and health visitors have their say. *Arch Dis Child* 2011;96:A16–18.
- Locyer V, Porcellato L, Gee I. Vitamin D deficiency and supplementation: are we failing to prevent the preventable? *Community Pract* 2011;84:23–6.