

Nutrition

Summary

From conception to old age, good nutrition is critical for optimal functioning and the avoidance of many common chronic diseases. Most of the English population does not eat enough fruit, vegetables or dietary fibre and consumes too much salt, sugar, and saturated fat. Poor dietary habits follow the pattern of socioeconomic deprivation and as such exacerbate health inequalities.

Within Hampshire, breastfeeding rates at 6-8 weeks are much lower than expected for the socioeconomic status of the population and below the national average. A balanced, healthy diet is vital in the early years, childhood and adolescence when preferences and habits are set for life. There is a low uptake of Healthy Start in Hampshire which aims to improve the health of pregnant women and families on benefit or low incomes by providing vitamins and vouchers for food.

Research suggests that the risk for many chronic conditions, such as cardiovascular disease and type 2 diabetes is set, at least in part, in fetal life. In addition, many women are entering pregnancy overweight or obese, significantly increasing health risks for mother and child during and after birth.

Older people living both at home and in care homes are at increased risk of malnutrition – leading to higher numbers of hospital admissions, longer stays in hospitals and increased risk of mortality.

Recommendations

1. Continue to focus on improving rates of breastfeeding
2. Develop, implement and evaluate a pilot intervention to identify and work with women who are obese in early pregnancy in order to reduce risk of poor birth outcome and unhealthy weights in offspring
3. Improve uptake of Healthy Start in partnership with providers.
4. Investigate workplace interventions for promoting a healthy diet/reducing the prevalence of overweight/obesity in adults. Consider a pilot
5. Investigate methods to ensure that vulnerable people of all ages living in their own homes and in care homes are not suffering from malnutrition

1. Introduction

Nutrition is important in terms of the quantity and balance of foods. An inadequate or unbalanced diet can lead to malnutrition: a state that can be present in those who are underweight, normal weight or overweight. A well balanced diet consists of a range of foods including fruit and vegetables, starchy whole grains, dairy products and lean protein. A poor diet is characterised by excessive intakes of saturated fat, salt, sugar and an insufficient consumption of fruit and vegetables. Food choice is influenced by many factors including socioeconomic status, environment and culture.

Consuming a poor diet can have a significant impact on resultant physical and mental health and the development of disease. For example, it has been estimated that around 30-40% of all cancers could be prevented with a healthy lifestyle and

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dietary measures.¹ In Hampshire, there are around 7,250 new cases of cancer diagnosed each year (2009/11 data). In addition, a diet that includes the recommendations regarding fruit, vegetables, saturated and trans fatty acids may reduce 20-30% of the incidence of cardiovascular disease.² Cardiovascular disease is responsible for over 3,500 deaths each year in Hampshire (2009/11 data). Furthermore, over half of type 2 diabetes could be prevented through dietary and lifestyle changes.³ In 2006/07, poor diet-related ill health cost the NHS in the UK £5.8 billion, with an additional £5.1 billion cost for overweight/obesity.⁴

2. Level of need in Hampshire

2.1 Infants

2.1.1 Breastfeeding

Exclusive breastfeeding is recommended for the first six months, followed by continued breastfeeding and appropriate complementary foods up to two years of age. Breastfeeding protects babies and mothers immediately and over time from illness and disease. In comparison to babies who are fed formula milk, breastfed babies are at a significantly lower risk of gastro-intestinal infection, respiratory infection, urinary tract infection, ear infection, type 1 and type 2 diabetes and atopic dermatitis.^{5,6,7,8,9} Women who breastfeed are at a lower risk of breast and ovarian cancer; hip fractures and reduced bone density.^{10,11}

In 2012, 78.0% of women in Hampshire initiated breastfeeding and 44.0% were still breastfeeding at 6-8 weeks (figure 1). This is higher than the national average for initiation (73.8%) but lower than the national average of 47.1% of women still breastfeeding at 6-8 weeks. Lower rates of breastfeeding are strongly associated with social deprivation and therefore, given the socioeconomic mix of Hampshire

¹ World Cancer Research Fund www.wcrf.org.uk

² Engelfriet P, Hoekstra J, Hoogenveen, Buchner F, van Rossum C, Verschuren M. 2010. Food and vessels: the importance of a healthy diet to prevent CVD. *European Journal of Cardiovascular Prevention & Rehabilitation*. 50-55 vol 17 no 1

³ Hu, F. 2011. Globalization of Diabetes. *Diabetes Care*. 1249-1257 vol 34 no 6

⁴ Scarborough P, Bhatnagar P, Wickramasinghe KK, Allender S, Foster C, Rayner M. 2011. The economic burden of ill health due to diet, physical inactivity, smoking, alcohol and obesity in the UK: an update to 2006-07 NHS costs. *Journal of Public Health*. 527-535, 33(4)

⁵ Quigley M.A., Kelly Y.J., Sacker A.S. (2007) Breastfeeding and Hospitalisation for Diarrheal and Respiratory Infection in the United Kingdom Millennium Cohort Study. *Paediatrics*; 119; e837- e842

⁶ Fani Ladomenou, Joanna Moschandreas, Anthony Kafatos, Yiannis Tselentis, and Emmanouil Galanakis. Protective effect of exclusive breastfeeding against infections during infancy: a prospective study. *Arch. Dis. Child*. 27 September 2010, 10.1136/adc.2009.16

⁷ Aniansson G et al. (1994). A prospective cohort study on breast feeding and otitis media in Swedish infants. *Pediatr Infect Dis J* 13: 183-188

⁸ Gunderson EP, Hedderson MM, Chiang V et al (2011) Lactation Intensity and Postpartum Maternal Glucose Tolerance and Insulin Resistance in Women With Recent GDM: The SWIFT cohort. *Diabetes Care*. Published 19 October 2011, 10.2337/dc11-1409

⁹ Greer et al. (2008) Effects of early nutritional interventions on the development of atopic disease in infants and children. *PEDIATRICS*; 121 (1): 183-191

¹⁰ Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective. WCRF.

http://www.unicef.org.uk/Documents/Baby_Friendly/Research/4/World_Cancer_Research_Fund_2007-10.pdf

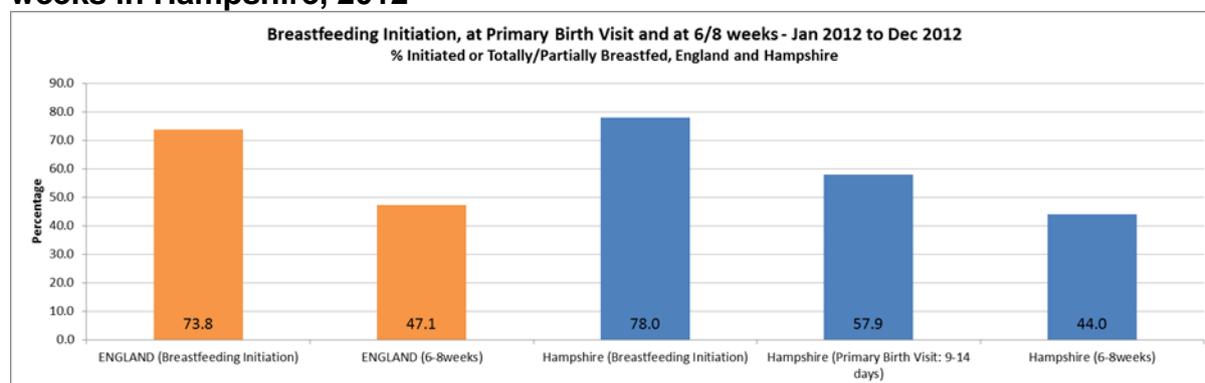
¹¹ Caroline J. Chantry et al (2004). Lactation among Adolescent Mothers and Subsequent Bone Mineral Density. *Arch Pediatr Adolesc Med*. 158:650-656

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population, a lower rate of breastfeeding at 6-8 weeks is disappointing. Figure 2 confirms that breastfeeding is lower in women living in more deprived parts of Hampshire. Levels of breastfeeding at 6-8 weeks are 29.8% in Gosport and 29.3% in Havant compared to 51.3% in Hart and 59% in Winchester.

UNICEF UK commissioned a report to determine the cost to the NHS of low breast feeding rates in the UK. The economic modelling for just five diseases with a strong evidence for the protective effects of breast feeding (maternal breast cancer, gastrointestinal infection; necrotising enterocolitis; lower respiratory tract infection and acute otitis media (child)) showed that with modest increases in breast feeding prevalence and duration there were potential savings to the NHS alone of £40 million per year. The true cost savings to the NHS and wider society when other diseases and illnesses are factored in are predicted to be much higher.¹²

Figure 1: proportion of women initiating and continuing to breastfeed at 6-8 weeks in Hampshire, 2012

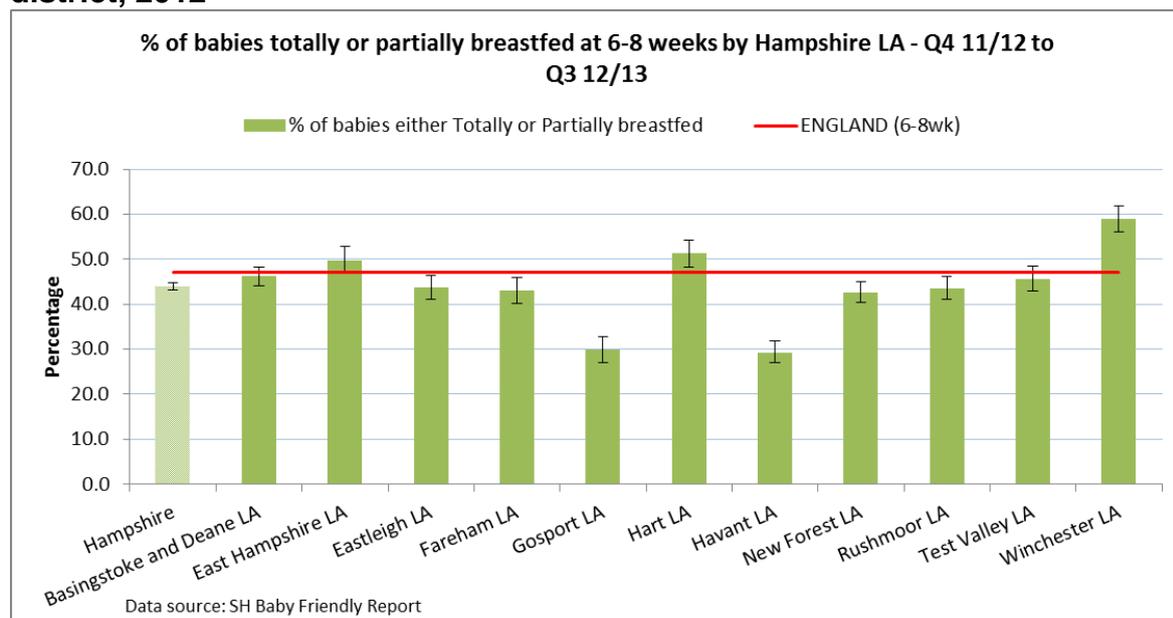


2.1.2 Introducing solid foods

The Department of Health currently recommends that solid foods should be introduced when babies are around six months old. Before this, it is thought that the baby's digestive system is still developing, and introducing solids too early can increase the risk of infections and allergies. However, there is a gathering body of evidence to suggest that the introduction of solid foods should be initiated when the baby is showing signs of being developmentally ready, with the British Dietetic Association suggesting that this should be no later than six months but not before four months. The Department of Health's Introduction to Solid Food (2008) focused on the utilisation of a 'Baby-Led Weaning' approach with the timing of introducing solid foods based on developmental readiness and a child-led approach rather than the traditional methods of parent-led feeding of pureed foods.

¹² Renfew MJ et al. (2012). Preventing Disease and Saving Resources: the potential contribution of increasing breast feeding rates in the UK. www.unicef.org.uk

Figure 2: proportion of babies totally or partially breastfed at 6-8 weeks by district, 2012



The National Infant Feeding Survey (2010) reported that 75% of mothers had introduced solids by the time their babies were five months old. Breastfed babies are commonly introduced to solid foods later than infants who are formula-fed. By six months, nearly three in five (58%) babies had been given ready-made baby food. Solid foods are more likely to be introduced to younger babies by mothers under 20 and mothers from lower socioeconomic groups.¹³ We do not have Hampshire data, but this is likely to be happening in areas of Hampshire with higher numbers of younger mothers and greater deprivation which include Gosport, Havant, Rushmoor, Eastleigh and Basingstoke.

Evidence suggests that weaning practice is socially patterned with dietary patterns running in families and the diet of infants likely to be similar to that of their mothers.¹⁴ Mothers of babies in managerial/professional occupations are more likely to give regular servings of fruit, vegetables, other fresh foods, breakfast cereals, dairy products, rice and pasta. The same women were also less likely to give ready-made foods and sweets/chocolates/biscuits. We do not have Hampshire data but these findings are likely to apply to mothers in Hampshire. Working with women to understand the barriers and facilitators to a healthy diet for themselves and their families is a key step in protecting the health of our children. This is an emerging area of exploration in local and national research institutions – linking with and supporting these studies may be beneficial to the population of Hampshire.

Diet in later infancy is not widely reported, nationally or locally. This may be a reflection of the difficulties in measuring diet in young children as well as the rapid changes in dietary patterns and intakes that take place before a child is two years.

¹³ Infant Feeding Survey 2010 <http://data.gov.uk/dataset/infant-feeding-survey-2010>

¹⁴ Robinson S et al. 2007. Dietary patterns in infancy: the importance of maternal and family influences on feeding practice. *British Journal of Nutrition*. 1029-1037. 98(05)

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2.1.3 Vitamin supplements

Vitamin A, C and D supplements should be given from six months unless the child is formula fed and receiving more than 500ml of formula per day.¹⁵ Breastfed infants born to mothers with low vitamin status may require supplements earlier, from the age of one month. In addition, breastfeeding mothers should take vitamin D supplements of 10 micrograms per day. Healthy Start is a UK-wide government scheme which aims to improve the health of pregnant women and families on benefits or low incomes.¹⁶ The scheme supports families by providing them with vouchers to spend on cow's milk, plain fresh/frozen fruit/vegetables and infant formula milk. It also provides Healthy Start vitamin supplements for eligible women (families receiving certain benefits) during pregnancy, and until their child is one year old. Children up to the age of four years old from eligible families are entitled to free vitamin drops. Children's vitamin drops contain vitamins A, C and D. Further information can be found on the Healthy Start website at www.healthystart.nhs.uk In Hampshire, Healthy Start vouchers are taken up by 68.7% of eligible families (77.2% England). Children's vitamins drops are taken up by 1.3% of eligible families (3.3% England) and women's vitamin supplements by 2.3% of the eligible population (6.6% England). These figures are very low nationally and but even lower locally.

2.2 Children and young people

Between the age of six months and five years, children are growing very quickly and becoming more active. It is a time when children learn about food in ways which will influence later food preferences and acceptance. Research has established that healthy eating habits in the early years are very important because they influence growth, development and academic achievement in later life.¹⁷

Much of the data collected on children's diets concerns fruit and vegetable intake. This provides useful trends but is not necessarily indicative of specific dietary patterns. The Health Survey for England 2010/11 reported that 16% of boys and 20% of girls aged 5-15 years consumed five or more portions of fruit and vegetables. Overall, the mean number of portions consumed was 3.0 portions for boys and 3.3 portions for girls.¹⁸ The National Diet and Nutrition Survey (NDNS) (a rolling programme of yearly cross-sectional surveys, to determine the dietary and nutrient intake of the UK population) found that children (5-16 years) typically have diets high in energy dense foods, saturated fat and non-milk extrinsic sugars, but low in fibre, fruits and vegetables.¹⁹ There is no Hampshire information available on children's dietary intakes, but the findings from national surveys are very likely to apply to children in Hampshire.

¹⁵ <http://www.nhs.uk/conditions/pregnancy-and-baby/pages/vitamins-for-children.aspx>

¹⁶ www.healthystart.nhs.uk

¹⁷ Feinstein L, Sabates R, Sorhaindo A, Rogers I, Herrick D, Northstone K, Emmett P. (2008) Dietary patterns related to attainment in school: the importance of early eating patterns. *Journal of Epidemiology and Community Health*. 62.

¹⁸ www.hscic.gov.uk/Article/1685

¹⁹ <http://webarchive.nationalarchives.gov.uk/20130402145952/http://transparency.dh.gov.uk/2012/07/25/ndns-3-years-report/>

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Nutrition has an effect on academic achievement and behaviour in children, with many studies focusing on the potential effect of school meals.²⁰ A study by the School Food Trust concluded that an intervention in primary schools to improve school food and the dining environment has a positive impact on pupils' alertness and their ability to learn in the classroom after lunch.²¹ In Hampshire, 42% of primary school children and 37% of secondary school children eat a school lunch. Details of school meals in Hampshire can be found at <http://www3.hants.gov.uk/caterers.htm>. It is not known how many children are eligible for a free school meal in Hampshire (eligibility criteria can be found here: <http://www3.hants.gov.uk/caterers/hc3s-freeschoolmeals.htm>) as free school meals are dependent on parents applying for the meals. Of the parents that have submitted an application, 74% of children have a school lunch.

Diet plays a key role in obesity. In Hampshire, 20.9% of children are overweight or obese by the time they reach reception year (four/five years of age). In year six (aged 10/11), almost one child in three (29.8%) is overweight or obese. For England, these figures are 22.8% and 33.6% respectively. Please see the Obesity chapter for more details.

Studies show that parents have a unique and primary role in influencing children's diets by exerting an influence through the food that is available and accessible in the home; how they present as role models and the parenting style adopted. Healthy Weight, Healthy Lives: the Consumer Insight summary, published in 2008, emphasised the importance of parenting style, reporting the following insights:

- Many parents underestimated the risk associated with their children's diet.
- Parents consistently underestimated how many unhealthy foods they and their children consumed.
- Parents assumed that their child was healthy if they seemed happy and had no obvious health problems.
- The desire to make their children happy often led parents to make unhealthy choices – challenging poor diet was linked to unhappiness for both parent and child.
- For some families, particularly those who are poorer, concerns about an unhealthy diet were not a high priority.
- Parents saw giving their child free choice over what they eat as a way of empowering them.
- Parents underestimated their own importance as role models.
- Parents did not recognise when they or their children were overweight and even when told by a health professional, refused to acknowledge this.²²

Again, in the absence of local evidence, it can be assumed that these findings also apply to the population of Hampshire. The Hampshire Healthy Weight Strategy for Children and Young People aims to address these issues using models such as the

²⁰ Effect of Free School Meals Nutrition on Educational Attainment (2010)

<http://www.niassembly.gov.uk/researchandlibrary/2010/8610.pdf>

²¹ School Food Trust School Lunch and Learning Behaviour in Primary Schools: An Intervention Study

www.schoolfoodtrust.org.uk/download/.../sft_slab1_behavioural_findings.pdf

²² http://www.nhs.uk/change4life/supporter-resources/downloads/consumer_insight.pdf

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HENRY programme and existing parenting programmes. See the Obesity chapter for more information.

2.3 Adults

A survey of over 3,000 people carried out by the Food Standards Agency reported that 99% of respondents said eating fruit and vegetables was very or fairly important, 94% said that eating less salt was important and 92% said that limiting foods high in saturated fat was important.²³ This agrees with other studies, from which we can conclude that the majority of adults have a good understanding of what constitutes a healthy diet. However, this does not seem to translate into everyday life. The NDNS 2008-2011 summarised the following findings:

- Only a third of adults met the recommended five servings of fruit and vegetables per day.
- Mean total fat intake met the recommendation of no more than 35% food energy. Older people (aged 65 and over) ate slightly more.
- All age groups ate more than the recommended level of no more than 11% food energy of saturated fat.
- All age groups exceeded the recommendation of no more than 11% food energy of sugar.
- Weekly oily fish consumption (54g) was way below the recommended one portion per week (140g).
- Families on a low income are less likely to consume vegetables and wholemeal bread and more likely to consume processed meats, full fat milk and add sugar and salt to their food.

There is no dietary intake information available on the diet of Hampshire residents. The NDNS reports using a representative sample from the UK population, so we can assume that this information is applicable to the Hampshire population.

Modelled data from the Department of Health indicates that 23.7% of adults in Hampshire are obese, compared to 24.2% England. Gosport is the only borough to be significantly higher than the national average. Please see the Obesity chapter for more information.

2.3.1 Maternal Nutrition

It is widely understood that fetal growth and development is compromised by unbalanced nutrition. Research suggests that the risk for many chronic conditions, such as cardiovascular disease and type 2 diabetes is set, at least in part, in fetal life. Variations in birth size are predictive of disease in later life – babies who are born with low or high birth weights carry a significantly higher risk of chronic disease. In addition, maternal obesity (defined as obesity during pregnancy) significantly increases risk of fetal congenital anomaly, prematurity, stillbirth and neonatal death.²⁴ Statistics on the prevalence of maternal obesity are not collected routinely in the UK, but trend data from the Health Survey for England show that the prevalence of obesity among women of childbearing age increased during the period 1997-2010. In addition, modelled data suggests that almost a quarter of adults are

²³ <http://www.food.gov.uk/news-updates/news/2013/mar/foodandyou2>

²⁴ Confidential Enquiry into Maternal and Child Health, 2007

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obese in Hampshire, only very slightly below the national average, with an unknown number overweight.

Women who are obese are significantly more likely to be older in pregnancy, to have a higher parity (number of pregnancies), and live in areas of high deprivation, compared with women who are not obese. Being overweight in pregnancy also increases the risk of gestational diabetes, which in turn increases the risk of obesity in offspring.²⁵

2.3.2 Older people

The appetite and food intake of older people can be affected by a variety of factors including physical disability; mental wellbeing; drug-nutrient interactions and socioeconomic factors such as an inability or lack of desire and motivation to prepare and cook food; physical access to food and affordability.²⁶ As part of the ageing process, there are changes in body composition (such as a decrease in muscle mass); a reduction in functional ability; diminished sense of taste and smell and a reduced ability to chew food. These changes impact individually and collectively on a person's ability to meet their nutritional requirements. In addition, as ageing occurs, the metabolic rate decreases resulting in a reduction in energy requirements. The requirement for energy continues to decline with increasing age as muscle stores diminish and physical activity reduces. This can mean that essential nutrient requirements are not met, leading to a greater likelihood of malnutrition occurring.²⁷

It is estimated that in the UK around one million people over 65 years old are malnourished or at risk, of which, 93% are living in the community.²⁸ Clinical consequences of malnutrition include: impaired immune response, reduced muscle strength, impaired wound healing, impaired psycho-function and impaired recovery from illness.²⁹ This translates to increased ill health – more hospital admissions and re-admissions, longer hospital stays, greater healthcare needs (more GP visits, care at home and greater use of antibiotics) and increased risk of mortality.^{30,31,32,33}

²⁵ Kim SY, Sharma AJ, Callaghan WM. (2012) Gestational diabetes and childhood obesity: what is the link? *Current Opinion in Obstetrics & Gynaecology* 24(6) 379-381

²⁶ The Caroline Walker Trust (2004) *Eating Well for Older People*. St Austell: The Caroline Walker Trust

²⁷ Jones J, Duffy M, Coull Y, Wilkinson H. (2009) *Older People Living in the Community – Nutritional Needs, Barriers and Interventions: a Literature Review: The Scottish Government* [online] Available at: <http://www.scotland.gov.uk/Publications/2009/12/07102032/0>

²⁸ M. Elia, R. M. Smith, *Improving Nutritional Care and Treatment: Perspectives and Recommendations from Population Groups, Patients and Carers*, BAPEN, 2009.

²⁹ Malnutrition Taskforce <http://www.malnutritiontaskforce.org.uk/resources.html>

³⁰ R. J. Stratton et al, 'Malnutrition in hospital outpatients and inpatients: prevalence, concurrent validity and ease of use of the 'malnutrition universal screening tool' ('MUST') for adults', *British Journal of Nutrition*, 2004

³¹ J. F. Guest et al, 'Health economic impact of managing patients following a community-based diagnosis of malnutrition in the UK', *Clinical Nutrition*, 2011, 30, 4.

³² M. Elia et al, 'The cost of disease related malnutrition in the UK and economic considerations for the use of oral nutritional supplements in adults', BAPEN 2005

³³ M. Heismayer et al 'Decreased food intake is a risk factor for mortality in hospitalised patients: the Nutrition Day Survey 2006', *Clinical Nutrition* 2006

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3. Projected service use and outcome in 3-5 years and 5-10 years

The cost of food has risen in real terms (cost after inflation has been subtracted) by 12% over the last five years.³⁴ An increase in food prices is more difficult for low income households to manage as spending a greater proportion on food leaves less money to spend on other bills. This is exacerbated by rising gas, electricity and fuel prices. The Trussell Trust (2012) reported that it helped to feed 26,000 people in the UK in 2008-09 through food banks; this increased to 128,697 in 2011-2012.³⁵ Currently, food banks that are registered with the Trussell Trust are situated in Alton, Andover, Blackfield (New Forest), Farnborough, Farnham and Fleet. However, it is known that there are others run by community voluntary groups.

The number of older people aged 75 and over in Hampshire is forecast to rise a further 10% by 2018. Without action to address the nutritional needs of working age and older people, rates of malnutrition will increase, leading to increased health care needs, longer hospital stays and increased morbidity.

The diversity of the population of Hampshire is also changing. Little is known about the dietary intakes or needs of the main groups of migrants, but we do know that high rates of diabetes are present in the Nepalese community. This indicates a need to prioritise nutrition interventions with this population group.

4. Current services in relation to need

4.1 Infant nutrition

- UNICEF Baby Friendly Initiative accreditation process or adherence to principles in all Hampshire maternity units/community services www.unicef.org.uk/babyfriendly
- Universal antenatal and postnatal services in maternity care and health visiting include help and support to breastfeed
- Collection and reporting of breastfeeding status at birth (initiation), new birth visit (10-14days) and 6-8 weeks
- Pilot partnership project to increase proactive breastfeeding support in the early days after birth
- Peer support for breastfeeding in Gosport, Havant and the New Forest
- HENRY: Health, Exercise and Nutrition for the Really Young (see the Obesity chapter for more information)
- Healthy Start – a government scheme to improve the health of low income pregnant women and families (www.healthystart.nhs.uk). The take-up of this scheme is extremely low due to complexities around eligibility and distribution, lack of healthcare profession engagement (perhaps due to eligibility and distribution issues). This needs to be addressed to ensure that vulnerable pregnant women, infants and young children are receiving nutritional supplementation to protect their immediate and future health.

³⁴ Office for National Statistics www.ons.gov.uk

³⁵ The Trussell Trust www.trusselltrust.org

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4.2 Children & Young People

- The implementation of national service specifications into Health Visiting/School Nursing Services
- School meal service
- Healthy Schools – A programme encouraging schools to adopt a whole-school approach, involving the whole-school community, parents/carers, governors, staff and pupils in improving children's health. The process is needs-led and can support the school development plan in striving for continual improvement

4.3 Adults

- Food banks for families
- Community meals service for older people
- Adult weight management schemes (see the Obesity Chapter for more details)

Nationally and locally, there is a tendency for effort to be focussed on the younger years. This is essential to prevent ill health throughout life and it makes economic sense to focus on younger generations. However, the lack of services for adults and older people is a concern, given that cancers and cardiovascular disease collectively cause the majority of chronic ill health and early death in Hampshire each year. In addition, addressing the nutritional needs of older people reduces health and social care costs and contributes towards a healthier and happier older generation.

There are no local services to address diet before and during pregnancy in women of a child-bearing age. This is a large gap in service delivery, considering the strong evidence around early nutrition.

5. User and provider views

National surveys have found that 90% of women who stop breast feeding in the first six weeks and 75% who gave up between six weeks and six months had wanted to continue for longer.¹³ A local survey of women in Hampshire reported that women had stopped breastfeeding due to a lack of understanding of the reality of breastfeeding; insufficient support to breastfeed and a local culture that does not promote breastfeeding.³⁶ This is reflected nationally with the Infant Feeding Survey reporting similar responses.¹³

It would be useful to understand local views on dietary intakes, and what would be needed to help populations consume a healthier diet. Linking with local and national research institutions may help us to identify ways to achieve this.

³⁶ Dewey S (2010). Insights into breastfeeding in the Rushmoor, Havant and Gosport areas of Hampshire (unpublished, NHS Hampshire 2011)

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6. Evidence of what works

6.1 Infant feeding

6.1.1 Breastfeeding

Research has shown that the following interventions increase breastfeeding initiation and prevalence:

- UNICEF Baby Friendly Initiative (BFI).^{37, 38}
- Antenatal preparation to ensure 'confident commitment'.³⁹
- Access to effective breast feeding support that includes regular postnatal home visits, proactive support, face to face support.³⁷
- Peer support programmes.^{37,39}

6.1.2 Introducing complementary foods

There is little evidence concerning the impact of different weaning methods on food preferences and later dietary habits. However, preliminary research has shown that baby-led weaning promotes healthy food preferences in childhood.⁴⁰ It is known that dietary habits track in childhood track into adulthood, so this work is promising and deserves further investigation.

6.2 Children

Most evidence around improving children's diets is centred on schools. A systematic review from the World Health Organisation concluded that schools should:

- Include a diet component in the curriculum taught by trained teachers.
- Ensure parental involvement.
- Provide a supportive environment.
- Include a food service with healthy choices.⁴¹

Children's Centres have also been explored as venues for promoting a healthy diet with mixed success. In 2008, NICE recommended that any interventions include:

- Use of theoretical behaviour change models.
- Clear messages.
- Avoiding the use of a didactic approach (both with children and adults).
- Food-based activities.
- Repeated exposure to new foods.
- Food tasting and offering choice.⁴²

³⁷ Beake S, Pellowe C, Dykes F et al (2012). A systematic review of structured compared with non-structured breastfeeding programmes to support the initiation and duration of exclusive and any breastfeeding in acute and primary health care settings. *Maternal and Child Nutrition*. DOI: 10.1111/j.1740-8709.2011.00381.x

³⁸ Avery A, Zimmermann K, Underwood PW, Magnus JH (2009). Confident commitment is a key factor for sustained breastfeeding. *Birth*. 2009 Jun; 36(2):141-8.

³⁹ Renfrew MJ et al. (2012). Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews*, issue 5. Art. No.: CD001141

⁴⁰ Townsend E, Pitchford NJ. (2012) Baby knows best? The impact of weaning style on food preferences and body mass index in early childhood in a case-controlled sample. *BMJ Open*
<http://bmjopen.bmj.com/content/2/1/e000298.full>

⁴¹ WHO <http://www.who.int/dietphysicalactivity/childhood/approaches/en/>

⁴² NICE Maternal and Child Nutrition <http://www.nice.org.uk/PH11>

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6.3 Adults

Two large reviews of the literature around increasing fruit and vegetable intake in adults suggested that using workplaces may be effective for the following reasons:

- They reach large audiences including some that traditionally do not come into contact with health services regularly.
- Interventions can be enhanced by peer support.
- They provide opportunities for reinforcement and environmental support.^{43,44}

A review of the evidence of changing health behaviour of young women from disadvantaged backgrounds concluded that four aspects of interventions were effective at improving diet:

- An educational component.
- Provision of longer term, continued support after the initial activity.
- Social support from peers or lay health workers.
- Family involvement with the intervention⁴⁵

7. Recommendations

- Continue to focus on improving rates of breastfeeding
- Develop, implement and evaluate a pilot intervention to identify and work with women who are obese in early pregnancy in order to reduce risk of poor birth outcome and unhealthy weights in offspring
- Improve uptake of Healthy Start in partnership with providers.
- Investigate workplace interventions for promoting a healthy diet/reducing the prevalence of overweight/obesity in adults. Consider a pilot
- Investigate methods to ensure that vulnerable people of all ages living in their own homes and in care homes are not suffering from malnutrition

⁴³ J Pomerleau, K Lock, C Knai, M McKee - The Journal of Nutrition, 2005 American Society of Nutrition Sciences

⁴⁴ A Anderson et al., The Effectiveness of Worksite Nutrition and Physical Activity Interventions for Controlling Employee Overweight and Obesity: A Systematic Review American Journal of Preventive Medicine July 2010

⁴⁵ Baird J et al. Changing health behaviour of young women from disadvantaged backgrounds: evidence from systematic reviews. Proc Nutr Soc 2009; 68:195-204.