Improving Maternal and Infant Nutrition: A Framework for Action

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Ministerial Foreword

The Scottish Government wants to ensure that all children have the best possible start to life, are ready to succeed and live longer, healthier lives. To help achieve this we have developed this Maternal and Infant Nutrition Framework for Action which is aimed at a wide variety of organisations with a role in improving maternal and infant nutrition in Scotland.

Improving maternal and infant nutrition cannot be achieved in isolation; it must be seen in a broader context of improving health and wellbeing across the whole Scottish population. Although there has been national and international focus on promoting and supporting breastfeeding for a number of years, there has not been the same focus on improving the nutrition of mothers during pregnancy, nor the nutrition of young children beyond milk feeding. This Framework for action stresses the importance of concentrating efforts on the early years and targeting those in need, to ensure that health outcomes for children are improved and health inequalities reduced.

The scale of the measures required means that change will not happen overnight; a long term view is required, therefore the Action Plan contained within the Framework covers a minimum period of ten years. Clearly, the outcomes cannot be achieved without effective and sustained partnership working between all statutory and voluntary organisations, so the actions that have been identified should be seen as relevant to all sectors.

There is considerable evidence to demonstrate the short and long term benefits of breastfeeding to both mothers and infants and this is likely to lead to a reduced need for NHS services in later life. Breastfeeding rates are low in Scotland and have been relatively static for the last decade. It is important to embed work to address this within wider work to improve health in the early years which will have a positive effect throughout the life of an individual.

In developing this framework, the Maternal and Infant Nutrition Strategy Group brought together a variety of organisations with wide representation including Royal Colleges, NHS Boards, including special NHS Boards, local authorities and the community and voluntary sector. The framework has been developed based on the principles outlined in Better Health, Better Care, Getting it Right for Every Child and the NHS Healthcare Quality Strategy.

Strong leadership and local champions at every level will form an essential element to the success of the strategy. In order to achieve success, there may be a need to reprioritise resources and refocus efforts on the very early years.

An outcomes framework identifying short, medium and long term outcomes has been developed together with a set of indicators for each outcome and these will be essential components in measuring our success.

SHONA ROBISON MSP, Minister for Public Health and Sport

Executive Summary

Improving the nutrition of mothers and infants cannot and must not operate in isolation, it should be seen in the broader context of improving the health and wellbeing of everyone of who lives in Scotland. This Framework is aimed at a variety of organisations with a role in improving maternal and infant nutrition. There are many partner organisations but, primarily, the NHS, local authorities, employers, the community and voluntary sector have the most opportunity to influence culture and behaviour change. The framework is aimed at policy makers within these organisations as well as frontline staff and volunteers.

We know that the diet and nutritional status of the mother before conception and during pregnancy, the feeding received by the infant in the first few months of life, the process of weaning onto solid foods and the diet and nutrition status of the growing infant all contribute significantly to the long term health of the population.

Although there has been national and international recognition of the need to promote and support breastfeeding for a number of years, resulting in positive action across many agencies, there has not always been the same focus on improving the nutrition of pregnant women, nor on the nutrition of young children beyond milk feeding. The framework stresses the importance of nutrition in the earliest years for long term health and wellbeing, but also provides case studies demonstrating some of the good practice already in place across Scotland.

The framework also highlights the vital role of significant others to the family in the choices made by parents in feeding their children. The existence of supportive environments facilitating parents to provide optimum nutrition for their family is crucial to success.

The detrimental effect of health inequalities on maternal and infant nutrition is also recognised in the framework, resulting in the recommendation of targeted support to those most in need to ensure that health outcomes for children are maximised and the gap between the most and least healthy is reduced.

It is vital that a mother's diet contains adequate nutrients and energy at each stage to allow proper foetal growth and development as well as providing the nutrients the mother needs for maintaining her own health. Poor foetal growth and development can lead to cognitive impairment and influence the development of chronic disease in later life. The impact of birth weight on long term adult health is well established. It is therefore crucial that women are given advice and support to eat healthily before, during and after pregnancy. Also, given the rise in overweight and obesity in the general population and in women of childbearing age, the number of women likely to be entering their first pregnancy and subsequent pregnancies already overweight or obese is of concern. The Framework therefore includes measures to address the needs of this population group.

The Scottish Government has adopted as policy World Health Organisation (WHO) guidance recommending exclusive breastfeeding for the first six months of an

infant's life. There exists a large and robust body of evidence demonstrating the short and long term health benefits of breastfeeding for both mothers and infants.

Women who have breastfed are at lower risk of breast and ovarian cancer and hip fracture due to osteoporosis later in life and there is evidence to suggest they are more likely to return to their pre-pregnancy weight. It is important to understand the factors which influence a mother's infant feeding decision in order to develop effective strategies to encourage more women to breastfeed.

The Scottish Government is fully committed to the principles underpinning the WHO Code on the marketing of breast milk substitutes and expects all partner organisations involved in improving infant feeding practices in Scotland to fully comply with it. In addition, the Framework emphasises the need to provide families with the information and support to safely formula feed their babies if they have chosen to do so.

Those involved in developing the Framework have established an Action Plan. Key partners, as identified in the Action Plan, will need to develop monitoring and evaluation frameworks to underpin their results plans in delivering the actions. We recognise this will take time to establish, however, by taking this approach, partners will be able to articulate their contribution to the overall aims of the framework. An Implementation Group will be established by the Scottish Government to develop a national monitoring and evaluation framework which will complement local frameworks. A Maternal and Infant Nutrition National Co-ordinator has been appointed for two years to oversee the implementation of the framework.

Introduction

In order to change infant feeding practices over time it must be acknowledged from the outset that this is not the sole responsibility of the NHS. As with the majority of issues that pose a threat to population health such as obesity, alcohol and drug misuse, smoking and mental ill-health; a co-ordinated, multi-agency, multi-faceted approach is needed. However, as the NHS is a universal point of entry to services available to pregnant women, the NHS has a unique opportunity to lead the way in addressing this from the very early years.

We must be clear what we want to achieve with this Framework. The two key relevant outcomes from the Scottish Government's National Performance Framework are:

- Our children have the best possible start in life and are ready to succeed;
- We lead longer, healthier lives.

The scale of the action needed to achieve these outcomes means that change will not happen overnight; a long term view is required, therefore, the Action Plan contained within the Framework covers a minimum period of ten years. Clearly a Framework for improving maternal and infant nutrition cannot achieve these outcomes alone so it is essential to set the required actions in a much broader context of improving population health and wellbeing.

A central strand of the Government's purpose is to reduce health inequalities. Infant feeding patterns in Scotland are poor but are worse in mothers from the most deprived areas. Younger mothers, those living on a low income or in areas of deprivation and those with fewer education qualifications are less likely to take the recommended nutritional supplements prior to pregnancy and have a good diet during pregnancy; they are also less likely to breastfeed and more likely to introduce complementary foods earlier than recommended.

There is considerable evidence to demonstrate the short and long term benefits of breastfeeding to both mothers and infants and this is likely to lead to a reduced need for NHS services in later life. Breastfeeding rates are low in Scotland and have been relatively static for the last decade. It is important to embed work to address this within wider work to improve health in the early years which will have a positive effect throughout the life of the individual.

Although it is crucial to improve maternal and infant nutrition across the whole population, activities must be targeted to those most in need of support. Women are more likely to breastfeed if they see other women breastfeeding so activities to encourage all women to breastfeed together with a range of activities aimed at those least likely to breastfeed are key components of the Framework.

Mothers in higher socio-economic groups are more likely to respond to health campaigns, access services and seek out health information, all of which have the potential to widen inequalities in health. Many people have communication difficulties and/or literacy difficulties with reading and writing for example, so our

activities must be tailored to the needs of the individuals, groups and communities we serve, as well as staff being sensitive and responsive to individual needs.

What is our Vision for the Framework – Where do we want to be?

- Women entering pregnancy are a healthy weight, in good nutritional health and that this continues throughout their pregnancy and beyond.

- All parents receive full information they can understand on infant feeding to enable them to make an informed choice on how they will feed their infant.

- All women receive the support they need to initiate and continue breastfeeding for as long as they wish.

- Infants are given appropriate and timely complementary foods and continue to have a wide and varied healthy diet throughout early childhood.

In developing the Framework, the Maternal and Infant Nutrition Strategy Group and each of the three sub-groups brought together a variety of organisations with wide representation including various Royal Colleges, NHS Boards, including special NHS Boards, local authorities and the community and voluntary sector. The Framework has been developed based on the principles outlined in Better Health Better Care, Getting it Right for Every Child (GIRFEC), and the NHS Healthcare Quality Strategy of openness, inclusion and co-production resulting in shared ownership among key stakeholders. These themes and supporting policies are outlined in more detail in Chapter 1.

Who is the Framework for?

The Framework is aimed at a variety of organisations with a role in improving maternal and infant nutrition. There are many partner organisations but, primarily, the NHS, local authorities, employers, the community and voluntary sector have the most opportunity to influence behaviour change. The Framework is aimed at policy makers within these organisations as well as frontline staff and volunteers.

What will the Framework Cover?

Research shows that the nutritional health of women prior to conception and the very early weeks following conception are extremely important in influencing the growth and development of the foetus and are critical periods in influencing longer term health. In order to be as focused as possible, the Framework is limited to considering the period 12 months prior to conception as opposed to the whole population of women of childbearing age. We recognise the difficulty this poses because it is estimated that up to 50% of pregnancies are unplanned and those women who do plan a pregnancy are those that are more likely to have taken folic acid supplements prior to conception, for example.

The Framework includes children up to their third birthday – the Strategy Group acknowledged that Scottish Government advice is that there are nutritional benefits for infant to be breastfed for up to 2 years of age therefore concluded it was

important for the scope to go beyond the recognised definition of an infant (which is 12 months). The Strategy Group recognised the considerable amount of work that has previously focused on the nutritional wellbeing of children in early years settings and therefore the Framework builds on that work. The Strategy Group acknowledged that the nutritional requirements of children varies between those aged 1-3 years and 4-6 years therefore in practical terms, it was considered that the Framework should include children up to their third birthday.

What will the Framework not Cover?

The Framework takes a population approach and while it considers health inequalities in the broadest sense, it does not specifically address the nutritional needs of particular groups of children such as those in hospital/neonatal units or those with medical conditions. Similarly the Framework does not seek to address the nutritional needs of mothers with chronic illness. The nutritional needs for both these groups is covered elsewhere in other work streams such as NHS Quality Improvement Scotland standards on food, fluid and nutritional care in hospitals and Baby Friendly Initiative standards for neonatal units.

What will it Require to Achieve Success and how will we Measure it?

An outcomes framework identifying short, medium and long term outcomes has been developed together with a set of indicators for each outcome, and these will be essential components in measuring our success. Strong leadership and local champions at every level will form an essential element to the success of the Framework. In order to achieve success, there may be a need to reprioritise resources and refocus efforts on the very early years.

At local level, activities to improve maternal and infant nutrition must be embedded in relevant NHS strategies and crucially in joint inter-agency plans for health improvement including Community Plans, Single Outcome Agreements and Children's Service Plans.

The majority of the activities recommended in the action plan are underpinned by a robust evidence-base, however for some activities there is a lack of evidence available. Practice evaluation will be crucial in growing our understanding of what are the most effective interventions to improve maternal and infant nutrition. Despite the lack of evidence in some areas, a pragmatic approach using practitioner opinion and experience was adopted, therefore, some activities are evidence-informed rather than evidence-based. The rationale underpinning each activity is presented in a supporting document 'Rationale supporting the Maternal and Infant Nutrition Action Plan activities' accompanying this Framework.

Chapter 1: Policy Context

1.1 Improving maternal and infant nutrition does not operate in isolation. It must be seen in the broader context of improving dietary health and wellbeing across the whole Scottish population. Although there has been national and international focus on supporting breastfeeding, including the *Better Health, Better Care Action Plan*, which outlined the HEAT performance management system, setting NHS Boards a target to increase the proportion of new born children exclusively breastfed at 6-8 weeks from 26.6% in 2006/07 to 33.3% in 2010/11, there has not been the same focus on improving the nutrition to mothers during pregnancy, nor on the nutrition of young children beyond milk feeding.

1.2 Scottish policy, including the *National Performance Framework*, which underpins delivery of the Scottish Government's agenda, stresses the importance of concentrating efforts on the early years. National Outcomes, including *"Our children have the best start to life and are ready to succeed"* and *"We live longer, healthier lives"* describe what the Government wants to achieve over the next ten years.

1.3 Recent Scottish policy, including *Equally Well: Report of the Ministerial Task Force on Health Inequalities*, *Achieving our Potential: A Framework to Tackle Poverty and Income Equality in Scotland* and the *Early Years Framework* aims to target support to those in need to ensure that health outcomes for children are maximised and health inequalities are reduced.

1.4 Equally Well: Report of the Ministerial Task Force on Health Inequalities highlighted that tackling health inequalities required action from national and local government and from other agencies, including the NHS, schools, employers and the Third Sector. The report emphasised the inequalities that exist in relation to diet during pregnancy and breastfeeding rates; with rates at 6-8 weeks three times lower in mothers living in the most deprived areas compared to those living in the least deprived areas. The *Early Years Framework*, based on the principles underpinning *Getting it Right for Every Child*, signalled local and national Government's joint commitment to break the cycle of passing inequalities in health, education and employment from one generation to another, through prevention and early intervention and give every child the best start in life.

1.5 The Scottish Government has also developed policy in relation to healthy eating and preventing obesity in Scotland, including *Healthy Eating, Active Living: An Action Plan to Improve Diet, Increase Physical Activity and Tackle Obesity* and *Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight*. These set out Government action to improve the nation's diet and encourage greater physical activity and to make healthy choices easier, including working with retailers, producers and the food industry. The Action Plan prioritised early years as a key area with initially £19 million made available to NHS Boards over the period 2008-2011, as detailed in *Chief Executive Letter (CEL) 36 (2008) to Improve Nutrition of Women of Childbearing Age, Pregnant Women and Children Under Five in Disadvantaged Areas*.

1.6 In 2003, the Royal College of Paediatrics and Child Health published the report of its most recent UK-wide review of child health screening and surveillance activity – the fourth edition of *Health for All Children*, commonly referred to as "*Hall 4*". Following this review, the Scottish Executive published guidance on implementing Hall 4 in Scotland. The guidance recommends a targeted programme of universal child surveillance and screening to enable professionals to concentrate their efforts on activities for which there is good evidence of health benefit, including increased health promotion activity, and to achieve more effective support for those children and families in most need. In April 2010, the Scottish Government issued a CEL, refreshing the key aspects of Hall 4 and highlighting areas which would be further developed through consultation.

1.7 An Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland sets out a range of measures to improve oral health, particularly of children, prevent dental disease and improve access to dental services. The Action Plan recognises that the basis for good dental health begins early in life and that healthy eating plays a central role in oral health. The Action Plan emphasises the importance of clear and consistent messages on healthy eating for the public and highlights the need for health professionals to continue to work with nurseries, schools and communities to develop good dietary and oral health habits. More recently, NHS Boards have been set a health improvement target: *at least 60% of three and four year olds in each SIMD (Scottish Index of Multiple Deprivation) quintile to have fluoride varnishing twice a year by March 2014.*

1.8 Recipe for Success: Scotland's National Food & Drink Policy sets out the vision to promote sustainable economic growth by ensuring that the Scottish Government's focus in relation to food and drink, and in particular our work with Scotland's food and drink industry, addresses quality, health and wellbeing, and environmental sustainability, recognising the need for access and affordability at the same time.

1.9 Other pieces of policy and legislation of which the context of the framework are part are the Maternity Services Framework and the Breastfeeding etc. (Scotland) Act 2005.

1.10 The Framework for Maternity Services which was published in 2001 is currently being refreshed to more effectively reflect the current policy landscape as it relates to maternity services in Scotland. A particular focus of the refreshment activity is on strengthening the contribution of maternity services to reducing health inequalities and improving health. The framework is intended as an overarching quality framework for the future development of maternity services in Scotland.

1.11 The Breastfeeding etc (Scotland) Act 2005 makes it an offence to prevent or stop a person in charge of a child under the age of two years, who is otherwise permitted to be in a public place, from feeding milk to that child. This legislation is the first of its kind in the UK and Scotland is one of the only countries worldwide to enshrine such protection in legislation.

1.12 There is other work in progress relevant to maternal and infant nutrition including work by NHS Quality Improvement Scotland (QIS) on the Scottish Women Held Maternity Record and Keeping Childbirth Natural and Dynamic and the Scottish perspective on *NICE PH Guidance 11: Improving the Nutrition of Pregnant and Breastfeeding Mothers and Children in Low Income Households* Although these are not policies as such, they are important to the context within which our delivery partners operate.

1.13 Underpinned by the key theme of early intervention, *Equally Well* and the *Early Years Framework* highlight the need for high quality antenatal, maternity and post-natal care, meeting individual needs, while *Better Health, Better Care* emphasises the need to strengthen antenatal care to ensure that those at higher risk of poor outcomes are engaged as early as possible. The Clinical Standards for Maternity Care (2005) require that *"All maternity services provide comprehensive programmes of education for childbirth and parenthood to women and their partners and families"*. NHS Quality Improvement Scotland, Education Scotland and Health Scotland are working together to develop a national approach to improve and implement evidence-based parent education programmes. The aim of this work is to support professionals to delivery consistent, evidence based parenting information to all pregnant women and their partners. This is being done by scoping current parent education provision, identifying gaps in the service and developing and implementing an evidence based syllabus to support the provision of parent education programmes for all women, with a targeted approach for hard-to-reach groups. Maternal and infant nutrition will be a core component of this new curriculum.

1.14 The Food Standards Agency (FSA) is an independent Government department set up in 2000 to protect the public's health and consumer interests in relation to food. The FSA provides advice to the public on general healthy eating and additional information on eating in pregnancy and while breastfeeding, guidance on infant feeding and healthy eating for young children. The FSA play a key role in promoting a healthier diet in the UK, working in partnership with others to make change happen. The main priorities of the FSA in relation to healthy eating are that food products and catering meals are healthier and that consumers understand about healthy eating and having the information they need to make informed choices. Work in progress includes continuing to achieve reductions in the levels of saturated fat, salt and calories in food products and the development, promotion and availability of healthier options when shopping and eating out. The FSA also undertake dietary and nutritional surveillance of the UK population.

1.15 As well as policy and legislation within Scotland, there are a number of UK (reserved) and International policies which must be taken into consideration with the framework.

1.16 The Scientific Advisory Committee on Nutrition (SACN) is an independent expert committee which provides advice to the four UK Departments of Health and the Food Standards Agency on all issues relating to food, diet and health.

1.17 The Healthy Start Scheme was introduced in 2006 and replaced the Welfare Foods Scheme. The scheme helps low income families by providing vouchers for free fresh milk, infant formula, fresh fruit and vegetables to young children and pregnant women, as well as free vitamin supplements. The scheme also encourages earlier and closer contact with health professionals who can give advice on pregnancy, breastfeeding and healthy eating. Vouchers can be exchanged at registered retailers, including supermarkets, pharmacies and community food initiatives. Health professionals play an important role supporting applications for Healthy Start, providing advice on healthy eating and breastfeeding and signposting to local groups of organisations providing practical food skills support for families.

1.18 As well as the Breastfeeding etc (Scotland) Act, mentioned earlier, there is also employment law in relation to pregnant and breastfeeding women. Pregnant employees are entitled to 52 weeks maternity leave. The law also recognises the importance of breastfeeding and it is protected under Health and Safety legislation. Mothers should be encouraged to continue breastfeeding after returning to work and employers can support more mothers to do so by creating a supportive environment. Employers have a duty to assess the risk to employees who are pregnant, have given birth in the last six months or who are breastfeeding.

1.19 There is a range of international policy in respect of maternal and infant nutrition, which is important to consider, including the World Health Organisation's (WHO) International Code on Marketing of Breast Milk Substitute. The code was launched in 1981 to protect all infants from inappropriate marketing of infant formula, promote and protect breastfeeding and ensure the safe and appropriate use of breast milk substitutes. The issue is reserved to the UK Government, which is a signatory and in 1995 the UK Government implemented Infant Formula and Follow on Formula Regulations rather than the WHO Code.

1.20 As well as this WHO published a Global Strategy for Infant and Young Child Feeding in 2003 to refocus the world attention on the impact that feeding practices have on the nutritional status, growth, development and health, and thus the survival of infants and young children.

1.21 The Protection, Promotion and Support of Breastfeeding in Europe: A Blueprint for Action was launched in 2004 and revised in 2008, with input from Scotland. The recommendations in the blueprint have been used as a basis for the development of the Maternal and Infant Nutrition Framework.

1.22 Work done by UNICEF in relation to maternal and infant nutrition includes the Innocenti Declaration and the Baby Friendly Initiative. The Declaration was adopted by 30 national Governments in 1990 and updated in 2005. It identified roles and responsibilities of key stakeholders and emphasises that these responsibilities need to be met to achieve an environment that enables mothers, families and other care givers to make informed decisions about optimal infant feeding.

1.23 The Baby Friendly Initiative is a global UNICEF and WHO programme which requires healthcare premises to adopt evidence-based best practice standards in order to achieve the prestigious Baby Friendly award. For maternity units there is the 'Ten Steps to Successful Breastfeeding' and for community healthcare premises there is the 'Seven Point Plan for Sustaining Breastfeeding in the Community'. The University Standards programme is an accreditation programme aimed at university departments responsible for midwifery and health visitor/public health nurse education. It was developed to ensure that newly qualified midwives and health visitors are equipped with the basic knowledge and skills they need to support breastfeeding effectively. Best practice standards for neonatal units have also been developed however UNICEF UK does not currently provide an accreditation programme for neonatal units. This was also highlighted in CEL14 (2008) Health Promoting Health Service: Action in acute care settings.

Chapter 2: Why is Maternal and Infant Nutrition Important?

Food, Nutrition and Health

2.1 A typical diet in Scotland is one which is too low in fruit and vegetables, fish and complex carbohydrates including dietary fibre, and too high in fat, sugar[1] and salt.[2] This type of diet is more likely to contain inadequate levels of essential nutrients and to be energy dense. Poor diet has been linked to the development of cardiovascular disease, cancer, type 2 diabetes, overweight and obesity[3] – all of which are high in Scotland. Individuals coming to Scotland from other countries and adopting Scottish dietary patterns also tend to have poorer health outcomes, with the incidence of type 2 diabetes in particular high amongst some ethnic groups[4].

2.2 Overweight and obesity[(1)] are rising across both developed and developing countries.[5] In 2009 26.8% of men and 26.4% of women in Scotland were obese, 66.3% of men and 58.4% of women were overweight (including obese). For children the corresponding rates were 14.4% and 28.2%[6.] Overweight occurs when energy intake from food and drink consumption, including alcohol, is greater than the energy requirements of the body's metabolism over a prolonged period, resulting in the accumulation of excess body fat. People who are overweight or obese are more at increased risk of a range of diseases, in particular cardiovascular disease, cancer, type 2 diabetes, osteoarthritis and gallstones.[5]

Maternal Nutrition and Foetal Growth and Development

2.3 Women are advised to follow general healthy eating advice before, during and after pregnancy. Healthy eating advice for women during these periods of time is provided on the Food Standards Agency eatwell website (www.eatwell.gov.uk) and is summarised in Appendix 3.

2.4 Survey data suggest that, taken as a whole, women of reproductive age including those who have adequate intakes of energy, have poor dietary intakes of some key nutrients including iron, calcium, folate, vitamin D and have low iron and vitamin D status.[7] As chapter 3 highlights, there is very little data on the dietary intake and nutritional status of pregnant women.

2.5 During pregnancy there is increased demand for several key nutrients such as vitamin D, folate, iron and calcium.[8, 9] This increased demand for iron and calcium for example can be met by consumption of foods rich in these nutrients and by normal physiological adaptations which increase absorption. Provided maternal stores of iron and calcium are adequate at the onset of pregnancy, there is no recommendation to increase intake of these nutrients over and above the RNI for non pregnant women.[(2)] However, for vitamin D and folate the increased amount required cannot be met from food sources alone, therefore, it is recommended that all pregnant women take a daily supplement of each, in addition to increasing their

[(1)] Body Mass Index (BMI) is commonly used as a measure of overweight and obesity, with BMI between 25 – 29.9 defining overweight and BMI 30 and above defining obesity in adults. BMI is calculated by dividing an individual's weight in kilograms by their height in metres squared.

[(2)] Reference Nutrient Intake is the intake of a nutrient that is considered to be sufficient to meet the needs of most of the general population

dietary intake. Women are advised to take a daily supplement containing ten micrograms of vitamin D during pregnancy and while breastfeeding.[8, 9] The main source of vitamin D is usually through the action of sunlight exposure to the skin. However populations living in more northern latitudes, including Scotland, receive lower levels of vitamin D through this process and therefore have to enhance their intake through a combination of diet and supplements.[8, 9] Before conception and until the 12th week of pregnancy, women are advised to take a folic acid supplement of 400 micrograms per day to reduce the risk of having an infant with a neural tube defect. In addition, women are advised to eat foods rich in folate and folic acid to increase their nutrient intake to 300 micrograms per day for the duration of their pregnancy.[9-11] Women with a BMI of >30 are advised to take a higher dose of folic acid (5mg). [81]

2.6 It is vital that the mother's diet contains adequate nutrients and energy at each stage to allow proper foetal growth and development, as well as providing all the nutrients the mother requires for maintaining her own health. If supply of nutrients and energy is limited, especially at critical stages, growth and development of the foetus may be impaired, for example organs such as the brain may not form properly or their functioning ability may be reduced, and the infant may be born small for gestational age[(3)].[12, 13] Poor foetal growth and development can lead to differences in body composition and metabolic and physiological function, which may lead to cognitive impairment and influence the development of chronic disease in later life.[14] Animal studies show that such changes often take place in the periconceptional period or early in pregnancy. This is likely to have implications for human health given that a high proportion of pregnancies are unplanned and these changes may consequently have occurred before a woman knows she is pregnant.[12] This highlights the importance of a good diet and appropriate nutritional supplementation before pregnancy as well as during pregnancy. Women who chose to follow a vegetarian or vegan diet, or exclude certain foods from their diet for cultural reasons may require specific advice from health professionals to avoid deficiencies of key nutrients.

2.7 Nutrition during pregnancy is thought to provide the developing infant with an insight into the level of nutrition they will receive when they are born. Problems are thought to occur when the postnatal diet differs drastically from the diet received during pregnancy, therefore, an infant receiving poor levels of nutrition during pregnancy going on to receive a high calorie diet following birth would be at greater risk of developing disease in later life.[13]

2.8 Foetal growth is affected by a number of other factors including genetics, physiological and social influences such as deprivation, smoking, drug and alcohol use as well as diet.[15]

2.9 Whilst the precise mechanisms of how maternal dietary intake and nutritional status, before and during pregnancy, influences foetal development are not fully understood, the impact of birth weight on long term adult health is well established.[16]

[(3)] Small for gestational age results from a reduction in growth of the foetus, commonly caused by placental dysfunction, poor maternal nutrition or maternal smoking

Birth Weight and Health

2.10 A mother's own birth weight, her pre-pregnancy weight and weight gained during pregnancy all influence the birth weight of her infant.[15] Mothers who were themselves born with a low birth weight, are twice as likely to have an infant with a low birth weight.[15] Low birth weight[(4)] and poor weight gain in infancy are linked to the development of chronic conditions such as cardiovascular disease, hypertension, insulin resistance, type 2 diabetes, dislipidaemia (altered blood fat levels) and obesity.[16, 17] Mean birth weight varies across ethnic populations and results from the UK Millennium Cohort study show that Indian, Pakistani and Bangladeshi infants are 2.5 times more likely to be born with a low birth weight than White infants. It is suggested that these differences between populations may be associated with socioeconomic factors although these mechanisms are not fully understood.[18]

2.11 Evidence suggests that women born with low birth weight are at an increased risk of developing gestational diabetes if they become pregnant in the future. This risk is further increased if they become obese in adult life.[19] Both gestational diabetes and obesity may lead to pregnancies resulting in infants with increased birth weight.

2.12 Adolescent mothers are more likely to have an infant with a low birth weight and other poorer outcomes than adult mothers.[20] Pregnancy places additional physiological demands on adolescent mothers due to the fact that they are still growing themselves, therefore, they may be at higher risk of nutritional deficiencies.

Impact of Maternal Obesity on Health

2.13 Maternal obesity, defined as a BMI ≥ 30 kg/m^2 at the first booking appointment, poses a significant risk to the health of the mother and infant. Obese women have an increased risk of developing type 2 diabetes, impaired glucose tolerance and gestational diabetes during pregnancy.[15] Infants born to mothers with gestational diabetes are more likely to have a higher overall fat mass, a higher percent body fat and are at greater risk of obesity as they progress through childhood, than those born to mothers with normal glucose tolerance.[15] Obese women also have higher rates of induction of labour, caesarean section and post-partum haemorrhage. Even where the obese mother's glucose tolerance is normal, obesity during pregnancy still increases the level of fat in the infant and predisposes towards bigger, heavier infants. In addition, maternal obesity increases the risk of stillbirth, congenital abnormalities, premature birth and neonatal death.[21, 15] Given the rise in overweight and obesity in the general population and in women of childbearing age, the number of women likely to be entering their first pregnancy, and subsequent pregnancies, already overweight or obese is of concern. The Centre for Maternal and Child Enquiries (CMACE) have recently published information on obesity in pregnancy: http://www.rcog.org.uk/news/cmace-release-cmace-publishes-information-obesity-pregnancy

[(4)] Low birth weight is defined as <2500g at full term (at or after 37 weeks gestation)

Impact of Maternal Obesity on Breastfeeding

2.14 Studies suggest obese women are less likely to initiate breastfeeding and breastfeed for a shorter duration.[22] The reasons are multifactoral but may be physiological, due to high progesterone levels which interferes with milk production, or psychological, due to greater dissatisfaction with body image in obese women. It is important that women identified as overweight or obese have early access to additional information and support and that health professionals are aware that such women may require increased support.

Infant Feeding and Health

2.15 During the first year of life there is a period of rapid growth, particularly with regard to brain development, therefore it is essential that the infant's diet provides an adequate supply of nutrients and energy.[13, 15, 23] The decision of how to feed an infant falls ultimately to the parent, in most cases to the mother, however, it is important that they are given information on the health benefits of breastfeeding and the risks associated with formula feeding to enable them to make a fully informed decision. During pregnancy parents receive a huge amount of information and it is important that this is relevant and not overwhelming. Information on infant feeding has to compete with information on a host of other issues, much of which may seem more pertinent prior to birth, however infant feeding should be discussed with all women as early as possible and be tailored to meet individual need.

Breastfeeding

The Importance of Breastfeeding

2.16 Breastfeeding is the natural way to feed infants. Breast milk provides a complete source of nutrition for first six months of life and contains a range of immunological substances that cannot be manufactured.[25]

2.17 Breast milk contains a wide range of bioactive substances including transfer factors such as lactoferrin, enzymes, hormones, immunoglobulin's, leucocytes and anti-inflammatory molecules, all of which support the development of the digestive and immune systems of the growing infant. None of these bioactive substances can be replicated; therefore, none are present in infant formula.

2.18 The Scottish Government has adopted as policy World Health Organisation guidance recommending exclusive breastfeeding for the first six months of an infant's life.[24] It is recommended breastfeeding should continue beyond six months, alongside the introduction of appropriate solid foods, for up to two years of age or as long as the mother chooses. There is a large and robust body of evidence demonstrating the short and long term health benefits of breastfeeding for both mothers and infants. Infants who are breastfed are at reduced risk of ear, respiratory, gastro-intestinal and urinary tract infections, allergic disease (eczema, asthma and wheezing), type 1 diabetes, and are less likely to be overweight later in childhood.[26, 27] Furthermore, infants who are breast fed are less at risk of childhood leukaemia and sudden unexplained infant death, and there may also be an association with improved cognitive development.[25, 27] For several of these

conditions the longer an infant is breastfed the greater the protection gained or the more positive the impact on long-term health. Pre-term babies that are breastfed are likely to have better eyesight and brain development than those who are not and have a reduced risk of necrotising enterocolitis.[25]

2.19 Women who have breast fed are at lower risk of breast and ovarian cancer, hip fracture later in life as a result of osteoporosis and there is some evidence to suggest they are more likely to return to their pre-pregnancy weight.[25, 26, 28]

2.20 The physiology of lactation is based on the production and action of hormones, prolactin and oxytocin. These hormones are known to have a powerful effect on mothers' sense of wellbeing which contributes to the bonding process between mother and infant, therefore the benefits of breastfeeding go beyond the nutritional value of breast milk. The process of attachment, where the infant and parent establish and develop a relationship, "*helps the infant to develop the capacity to control feelings, deal with stress, be adaptable and to form future relationships*."[29] Infants with poor attachment are at greater risk of problems including emotional development, behavioural difficulties, low self-esteem and schooling difficulties later in childhood. In addition, infants with poor attachment are more likely to suffer from anxiety and depression in adulthood.

2.21 Women who know about the health benefits of breastfeeding are more likely to start breastfeeding, [30] therefore it is essential that in the antenatal period the health benefits of breastfeeding are discussed and explained to all women.

2.22 For a more comprehensive analysis of the health benefits of breastfeeding see, for example:

- Ip S, Chung M, Raman G et al. Breastfeeding and maternal and infant health outcomes in developed countries. Evidence Report/Technology Assessment No. 153. Agency for Healthcare Research and Quality, Rockville MD 2007.
- Horta B, Bahl R, Martines JC et al. Evidence on the long term effects of breastfeeding: systematic review and meta-analyses. World Health Organisation, Geneva 2007.
- World Cancer Research Fund. Food, nutrition, physical activity and the prevention of cancer: a global perspective. AICR, Washington DC, 2007

Initiation and Duration of Breastfeeding

2.23 Despite the significant health benefits of breastfeeding for both mothers and infants, breastfeeding rates in Scotland, the rest of the UK and parts of Europe, are low.[32] Chapter 3 provides more detail on breastfeeding rates in Scotland.

2.24 It is important to have an understanding of the factors which influence a mother's infant feeding decision in order to develop effective strategies to encourage more women to breastfeed. These factors range from the attitudes towards breastfeeding of those closest to a mother such as her partner or mother/mother-in-law, whether she herself was breastfed as an infant, through the information and support received from health professionals, to the level of support she receives in

her wider community. The factors are varied and complex and are summarised in Table 1.[33]

2.25 Categorising the influences in this way highlights that whilst the health service has a significant role in encouraging and supporting mothers to breastfeed, many other organisations have a role to play in creating a supportive environment for breastfeeding mothers, as well as in changing broader societal attitudes so that breastfeeding is accepted as the 'cultural norm'.

Table 1: Influences on Initiation and Duration of Breastfeeding

Mother, child, family	• Age, parity, physical and psychological health of the mother • Breastfeeding experience of the mother herself and with previous children • Education, employment, social class, ethnicity, area of residence • Knowledge, attitudes, confidence in the ability to breastfeed • Marital status, family size, support from partner and family • Lifestyles (smoking, alcohol, drugs, diet, physical activity) • Birth weight, gestational age, mode of delivery, health of the newborn • Access to role models who have had positive breastfeeding experiences
Healthcare system	• Access to antenatal care and quality of care • Quality of assistance during delivery and in the first few days • Access to postnatal maternal and child healthcare and quality of care • Type and quality of professional support for lactation management • Access to peer counselling and mother-to-mother support
Public health policies	• Level of priority and financial support given to breastfeeding • Official policies, recommendations and plans • Breastfeeding monitoring and surveillance systems • Quality of pre and in-service training of health workers • Financial support for voluntary mother-to-mother support activities • Communication for behaviour and social change and use of different media for breastfeeding advocacy
Social policies and culture	• Legislation on and enforcement of the International Code • Legislation on maternity protection and its enforcement • Representation of infant feeding and mothering in the media

	• Obstacles and barriers to breastfeeding in public • Prevalence and activities of mother-to-mother support groups • Level of community awareness and knowledge

Infant Feeding and Growth

2.26 It is well established that breast fed infants can have a slower rate of growth than formula fed infants due to the difference in composition between breast and formula milk. The composition of breast milk changes between and during each feed in response to the infant's nutritional and developmental needs. From a physiological perspective, frequent feeding in the early days and weeks is important to establish maximum milk production. Breast fed infants are able to control the amount of milk they consume therefore they may learn to self-regulate their energy intake better than formula fed infants.

2.27 It is suggested that the difference in protein intake between breast and formula fed infants may contribute to later adiposity. The higher protein intake in formula fed infants is thought to programme later obesity through stimulation of insulin release and programming of higher long-term insulin concentrations.[34] Emerging evidence strongly suggests the first few postnatal weeks are a critical window for programming long-term health. Studies suggest that rapid weight gain in infancy is strongly associated with later risk of obesity.[15] Conversely, there is evidence to suggest that poor weight gain and under nutrition in infancy are associated with permanent stunting and cognitive impairment which leads to poorer outcomes in adulthood, such as fewer years of attained education, and lower adult productivity and earning capacity.[35]

2.28 The new WHO Growth Charts were introduced in Scotland for all infants born on or after 1st January 2010.[36] The Growth Charts were developed following a study of optimum growth in children undertaken in a selection of countries across the world. The study showed that the growth patterns in breastfed infants were similar and recommended that one growth chart which reflects optimum growth – that of breastfed infants – should be adopted for use across the world. On previous charts infants who were breastfed appeared to grow slowly which was commonly thought by health professionals to cause anxiety among mothers, who took this to mean that their infant was receiving insufficient breast milk.

Formula Feeding

2.29 Although evidence shows that breastfeeding is undoubtedly the healthiest way to feed an infant, there are many mothers who for a variety of physical, social or psychological reasons choose to feed their infant with infant formula. Most women are physically able to produce enough breast milk for their infant, as long as they receive appropriate advice and care [37].

2.30 It is essential that a mother is not judged or discriminated against for choosing to formula feed her infant; she should receive the same level of support as a breastfeeding mother.

2.31 Infant formula is manufactured using modified cows' milk and does not contain any of the protective antimicrobial or bioactive substances described previously. Powdered infant formula is not a sterile product and can therefore be a growth medium for harmful bacteria. It is essential that parents who choose to formula feed are shown how to prepare and use infant formula safely to minimise the risk of the infant becoming ill. Current advice from the Food Standards Agency recommends preparing one feed at a time, using boiled tap water that has been allowed to cool for no more than 30 minutes and adding water to the bottle first before powdered infant formula.[38]

2.32 Clearly, mothers who choose not to breastfeed, and their infants, do not receive any of the health benefits of breastfeeding. It is not only the absence of breast milk that poses a risk to future health; giving infant formula in itself is associated with specific risks to infant health, for example, contamination of *Enterobacter sakazakii*[(5)] during manufacture and preparation of powdered infant formula[39] or inappropriate reconstitution of powdered formula during preparation.

2.33 The Infant Formula and Follow-on Formula (Scotland) Regulations 2007 regulate minimum and maximum nutrient concentrations and food ingredients that can be used in the manufacture of infant formula.[40] There are two main types of infant formula – whey and casein based formula. It is recommended that whey based formula is used throughout the first year of life. There is no sound medical or nutritional reason to advise changing brand of infant formula or from whey to casein based infant formula.[33]

2.34 Follow-on formula is manufactured for infants from the age of six months, however for most infants it has no advantage over standard infant formula and is therefore not recommended.[41] There is evidence that some mothers, particularly those in lower socio-economic groups, are giving their infants follow-on formula before the age of six months[30], posing additional risk to an infant's immature digestive system.

2.35 The WHO Code on the marketing of breast milk substitutes (which includes infant formula, other milk products, foods and beverages used as a partial or total replacement for breast milk, feeding bottles and teats) was launched in 1981 to protect all infants from inappropriate marketing of infant formula.[42] The Code does not prohibit the sale of breast milk substitutes but regulates their marketing to the public, limits the provision of product information to health professionals to a scientific and factual basis only and prohibits the promotion of products in all healthcare facilities. Promotional items such as pens, diary covers, calendars and weight conversion charts, for example, from infant formula manufacturers should not be accepted or used within any health service premises in Scotland. Sponsorship from infant formula manufacturers in the form of grants for attendance at study days or equipment or other materials should not be accepted by any part of the NHS in Scotland.

(5) *Enterobacter sakazakii* is a microorganism which can cause severe infection in infants e.g. meningitis, necrotising enterocolitis.

2.36 The Scottish Government is fully committed to the principles underpinning the WHO Code and expects all partner organisations, e.g. NHS, local authorities and the third sector, involved in improving infant feeding practices in Scotland to comply fully with it.

Introduction of Complementary Foods and Early Eating Habits

2.37 The introduction of complementary foods is commonly referred to as 'weaning' and means the gradual introduction of solid foods to an infant's diet alongside usual milk feeds (breast or formula).

2.38 Scottish Government policy, based on WHO guidance, is to recommend the introduction of solid foods at around the age of six months for all infants.[43] Breast[44] or infant formula milk provides all the nutrients most infants need for the first six months. At around six months and beyond infants' requirements for nutrients, particularly iron, cannot be met by breast or infant formula milk alone. Most infants are developmentally ready for complementary foods at around six months – this means they can sit with minimal support, hold their head up and can pick up food and put it in their mouth.

2.39 This allows parents to offer a variety of soft finger foods, and mashed family foods can be provided instead of smooth purees. This approach, often referred to as 'baby-led weaning' can have a positive effect, with the child being willing to try a wider range of healthy foods throughout early life.

2.40 Currently, the majority of infants in Scotland are introduced to complementary foods before six months[30], despite the fact that introducing complementary foods too early has been shown in the literature to pose risks to infant health. Before the age of four months an infant's bowel is immature therefore they are not able to digest and absorb food normally. There is evidence of increased risk of eczema if complementary foods are given before four months[45] and evidence of increased risk of type 1 diabetes if foods containing gluten are given before the age of three months.[46] Infants who receive complementary foods too early are more likely to suffer from respiratory and gastrointestinal illness compared to those given complementary foods at a later stage. There is also evidence, from the Millennium Cohort Study, to suggest that infants who receive complementary foods early are more likely to be overweight later in childhood.[47]

2.41 A few studies have recently been published that are not fully consistent with the recommendations on age of introduction of complementary foods at around six months.[45, 48, 49] Any change to Scottish Government policy on exclusive breastfeeding and the age of complementary foods would be based on revised advice from SACN (Scientific Advisory Committee on Nutrition) following their review of more recent evidence. Current SACN advice on the introduction of solids continues to be at around six months for all infants.

2.42 The main influences on the timing of introduction of complementary foods are socio-economic status, maternal age, educational attainment and prior feeding experiences.[30] Mothers who introduce complementary foods early are more likely to base their decision on advice from family or friends, while mothers who introduce

complementary foods later are more likely to base their decision on advice from a professional.[30] Furthermore, many mothers decide to introduce complementary foods before the recommended age based on the perception that their infant is hungry or not satisfied with milk feeds.[30]

2.43 The type of foods and drinks given to infants is important for later health and establishing longer term eating habits. The types of foods and drinks given will also influence dental health therefore it is important to avoid foods and drinks containing sugar. Infants and young children have immature kidney function and so should not be given foods high in salt. Suitable first foods include fruits, vegetables and baby rice. It is recommended that the amount and variety of foods are gradually increased from around six months so that by the age of 12 months, food rather than milk is the main part of an infant's diet. After six months an infant's stores of iron become low therefore it is important that foods rich in iron are included regularly in the infant's diet to prevent anaemia. Foods rich in iron include red meat, eggs, pulses (peas, beans and lentils) and dark green leafy vegetables. In addition, it is recommended that foods rich in vitamin C are served at mealtimes in order to enhance the absorption of iron.

2.44 Parents are advised to use home prepared foods (without salt or sugar added) rather than commercially made baby foods so that the infant becomes accustomed to eating family foods.

2.45 Further detailed information for parents on complementary feeding can be found in NHS Health Scotland's publication 'Fun First Foods'.
http://www.healthscotland.com/uploads/documents/12161-FunFirstFoods_English_2010.pdf

2.46 Early exposure to a variety of tastes and textures is important in the long term development of children's food preferences. Eating patterns and food preferences established in early childhood are likely to be carried on into later life. Findings from the Southampton Women's Study[50] showed that the quality of an infant's diet at six and 12 months is determined by the quality of the mother's diet, independent of other factors including educational attainment and smoking status. Interventions to improve the diet of mothers should be developed as this will have a direct impact on the diet of infants.

2.47 The timing of when lumpy food is introduced into an infant's diet has been found to have a significant effect on whether infants become fussy eaters as toddlers. Infants introduced to lumps late (from ten months of age) were more likely to exhibit difficult feeding behaviour by 15 months, for example they were more likely to be choosy and to have definite likes and dislikes, than infants introduced to lumps between six and nine months.[51] A follow up study of the same infants found that those introduced to lumps from ten months ate less of the foods in each of the main food groups and had significantly more feeding problems at seven years, than those introduced to lumps between six and nine months. Furthermore, infants who were introduced to lumps from ten months consumed fewer types of fruits and vegetables at the age of seven compared to those given lumps earlier.[52]

Summary

2.48 The diet and nutritional status of the mother before conception and during pregnancy, the feeding received in the first few months of life, the process of weaning onto solid foods, and the diet and nutritional status of the growing infant all contribute significantly to the long term health of the population.[13, 15, 53] Poor nutrition during these critical developmental stages can lead to impaired cognitive, physical and economic capacity that cannot subsequently be restored. Maternal obesity increases the risk of complications for both the mother and the infant during pregnancy and birth, and influences long term health. A poor diet during pregnancy and early life has been linked to a range of conditions in adulthood including cardiovascular disease, insulin resistance, type 2 diabetes and obesity.

Chapter 3: What is Known about Maternal and Infant Nutrition in Scotland?

Introduction

3.1 The Public Health Observatory Division at NHS Health Scotland undertook a review to describe current maternal and infant diet and nutritional status in Scotland.[53] The full review is available on the Scottish Public Health Observatory (ScotPHO) website at www.scotpho.org.uk

3.2 This chapter presents an overview of the findings of the review. The objectives of the review were to:

- Detail the current availability of maternal and infant nutrition information in Scotland from national surveys, routinely collected data and robust ad hoc data sources;
- Identify potential nutritional status and dietary indicators that can be used to assess maternal and infant nutrient intake and nutritional status in Scotland; and
- Assess where possible, using these indicators, maternal prenatal and postnatal diet and nutritional status, breastfeeding, weaning, and the diet and nutritional status of infants after weaning in Scotland.

Approach

3.3 The review was structured around key phases in pregnancy and infancy, from pre-conception up to the infant's third birthday. It compiled existing published information and some secondary analysis of existing data sets: no new data collection was undertaken.

3.4 Relevant data from routine sources, including regularly conducted surveys, in Scotland was sought. Where this was not available, one-off nationally representative surveys in Scotland or the UK were sought. (Most UK-wide nutritional studies have small Scottish samples that may not be adequately representative.) All non-UK studies were excluded.

3.5 The review assessed the data available on general diet, nutrient intake and nutritional status of some of the key vitamins and minerals, maternal obesity, birth weight, breastfeeding, formula feeding and complementary feeding. Based on advice from public health nutritionists, the key vitamins and minerals included were vitamin D, folate, iron and calcium.

What Information is Available?

3.6 There are limited data available on maternal and infant nutrition in Scotland. Many of the sources used were not recent and/or had small samples not adequately representative of the Scottish population. For example, all three relevant UK National Diet and Nutrition Surveys had small Scottish samples.[54-56] There is no routinely collected data in Scotland on maternal nutrition before, during or after pregnancy. The diet of women of childbearing age was used as a proxy because some studies suggest little change in pregnancy from prior dietary patterns. There

are some data collected on infant nutrition in Scotland, mainly breastfeeding. Little is collected after the routine 6-8 week review until the start of school at around five years of age.

3.7 Making comparisons between different sources or over time is difficult. Results can be reported for dietary intake, nutrient intake, nutritional status or a combination of these (and other intake such as supplements). Results may be presented as means, medians or proportions in relation to thresholds, and for inconsistent age groupings. A recent review of progress towards the Scottish Dietary Targets indicated that there has been little change in the overall diet of the general population in Scotland since 2001; only very small improvements were made towards achieving targets for fruit and vegetables, brown/wholemeal bread and oil rich fish between 2001 and 2006 and there was no reduction in the intake of fat, saturated fat, and added sugar, all of which remained considerably higher than the targets.[1] Deprived households in Scotland continue to have a poorer quality diet. Increasing deprivation, decreasing income and decreasing social class have been linked to more energy dense eating patterns in Scotland.[55]

What does the Information Available tell us about Maternal Nutrition?

Women of Childbearing Age and During Pregnancy

3.8 There was no national data available to describe the nutritional status of women during pregnancy and following birth. However, data from national dietary surveys can indicate the nutritional status of women of childbearing age and their likely nutritional state at the start of pregnancy. These surveys suggest that most women do not follow current dietary guidelines. Diets continue to be high in saturated fat and sugar and below the recommended intakes for fruit and vegetables, oily fish and dietary fibre.[54, 58] There appears to be little improvement in women's diets over time, however the information available is limited.[57]

3.9 In 2008 over half of women (52%) aged 16-44 years in Scotland were classified as overweight or obese.[5] Obesity during pregnancy is associated with an increased health risk to both mother and infant.[21] While height and weight of the mother is recorded at the first NHS appointment of her pregnancy, this data is not published although work is underway to assess the quality of this data.

3.10 The poorest diets are consistently found in women from the most disadvantaged groups. In an Aberdeen cohort study, poor food choices during pregnancy were consistent with poor nutrient intakes and there was a strong social gradient.[59] The study found that women in the most deprived groups had lower intakes of fruit and vegetables and oily fish and had higher intakes of processed meat, fried potatoes, crisps and snacks, milk and cream, and soft drinks than women in the least deprived areas. As a consequence, the nutrient intake of the most deprived women was lower in protein, non-starch polysaccharides and most vitamins and minerals.

3.11 Analysis of data from the Scottish Health Survey suggested that younger adults were more likely to have a poorer quality diet.[5] Based on the National Diet and Nutrition Survey[60], the Scientific Advisory Committee on Nutrition identified

adolescent girls and young women in the UK as one of the groups most at risk of poor dietary variety and low nutrient intake and nutrient status.[61] It is likely that a significant proportion of young women enter pregnancy with suboptimal levels of some nutrients.

3.12 More than one quarter (28%) of women in the UK had low vitamin D status in 2000-01.[59] There is no data available on uptake of vitamin D supplementation during pregnancy or while breastfeeding in Scotland or in the UK.

3.13 Over 10% of women from low income households in Scotland and the UK were deficient in folate in 2003-05.[58] In 2005 a high proportion of women (77%) in Scotland reported taking a folic acid supplement at some point during the first three months of pregnancy.[29] However, it is not clear whether the amount of folic acid taken and the timing was consistent with the advised level. The Southampton Women's Study assessed folic acid intake in 203 pregnant women aged 20-34 years of age at 11 weeks gestation. Nearly all (93%) were taking some folic acid supplements but only 12% were taking the recommended 400 micrograms a day of supplements.[62] It is likely, therefore, that folate supplementation remains inadequate in the majority of women during early pregnancy.

3.14 Almost half (49%) of young women from low income households in the UK had low iron intakes in 2003-05 and 21% had low iron stores.[58] No large scale studies of iron status during pregnancy in Scotland were identified.

3.15 A high proportion of women of childbearing age met the recommended intake of calcium in 2000-01.[60] However, 15% of women from low income households in the UK had low calcium intakes in 2003-05.[58] The Aberdeen cohort study was the only study identified that reported calcium intake in women during pregnancy in Scotland.[59] The study which presented results by SIMD (Scottish Index of Multiple Deprivation) decile found no significant difference in calcium intake in pregnant women by deprivation category.

Women Following Birth

3.16 No Scottish or UK studies providing robust measurement of nutrient intake or nutrient status of women following birth were identified.

3.17 Information on maternal weight following birth is not routinely collected in Scotland. While the opportunity to measure and record maternal weight is possible during routine appointments following birth, there are no mandatory weight measurements recorded.

What does the Information Available tell us about Infant Nutrition?

Birth Weight of Infant

3.18 Although birth weight is particularly influenced by maternal weight at conception, it also reflects maternal nutrition during pregnancy and gives an indication of the nutrition received by the developing infant.[13]

Birth weight of infants born in Scotland is published by the Information Services Division (ISD) Scotland.[63] The proportion of full term infants born in Scotland with low birth weight has remained at a similar level since 1988 with under 3% having low birth weight (below 2,500 grams) and less than 0.05% having very low birth weight (below 1,500g). Around 1% of babies born in Scotland have a very low birth weight, and there is a distinctive deprivation gradient in low birth weight babies in Scotland – with almost three times as many born to mothers from the most deprived areas.[63] It is possible that the recent increase in levels of obesity in Scotland may be having an effect on birth weight. However, while data is collected on birth weight in Scotland there are no current definitions of 'high' birth weight, consequently this is not routinely published.

Breastfeeding

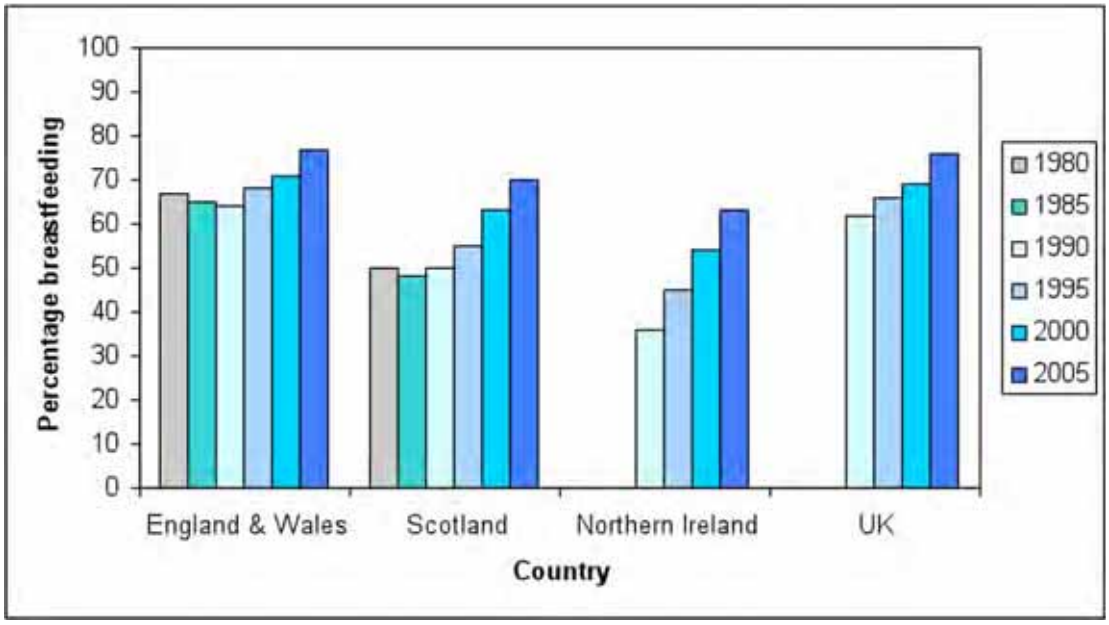
3.19 The World Health Organisation (WHO) defines *exclusive breastfeeding* as giving no other food or drink – not even water – except breast milk.[64] It does however allow the infant to receive drops and syrups such as vitamin and mineral supplements and medicines. The Infant Feeding Survey uses this definition to report data on exclusive breastfeeding. *Mixed breastfeeding* is defined as receiving both breast milk and formula milk or other milk.[30]

3.20 Breastfeeding data published by ISD Scotland provides only an indicator of *exclusive breastfeeding* and does not match the WHO definition.[65] The mother is asked whether the infant is exclusively breastfed, exclusively formula fed or receiving mixed feeding (both breast and formula). In the past there has probably been some variation in how this question is asked. In order to improve consistency, recent guidance for public health nurses specifies the feeding method recorded on Child Health Systems Programme – Pre-School (CHSP-PS) system should relate to the type of feeding *in the last 24 hours*.

Survey Data

3.21 The Infant Feeding Survey is conducted every five years in the UK and assesses the feeding methods of infants from birth to 9-12 months of age.[30] In 2005, the incidence of breastfeeding was 70% in Scotland, with a strong rise since 1990 (Figure 1). Other UK countries have also shown increases. Breastfeeding is more common in mothers with higher educational levels, those aged 30 or over, first time mothers and those from managerial and professional occupations.

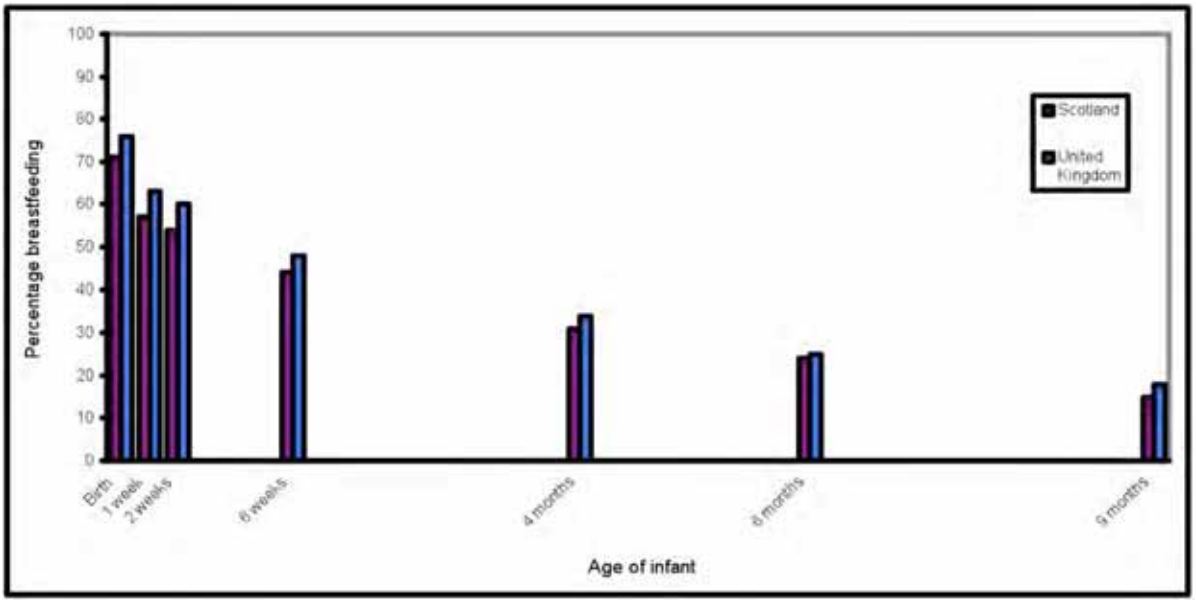
Figure 1: Incidence of Breastfeeding Initiation by UK Country, 1980 to 2005



Source: Infant Feeding Survey 2005 – Stage 1 (Infants aged 4-10 weeks old).

The Infant Feeding Survey (2005) showed that breastfeeding rates in Scotland fell rapidly from 70% initiation to 57% at 1 week, 44% at 6 weeks and 24% at 6 months (Figure 2).

Figure 2: Prevalence of Breastfeeding at Ages up to 9 Months by Country



Source: Infant Feeding Survey 2005

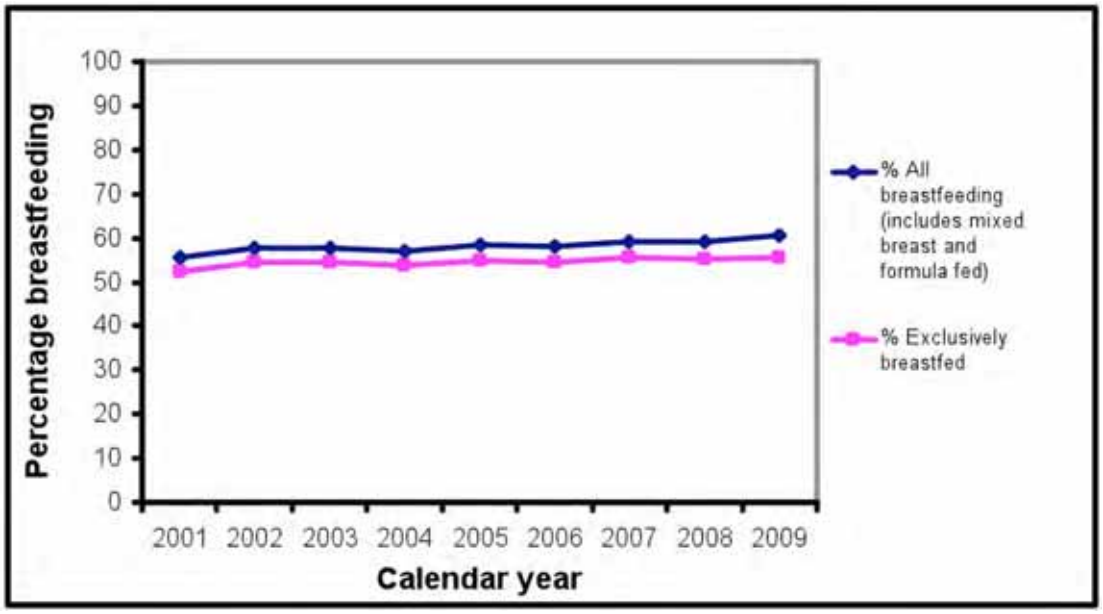
Routinely Collected Data

3.22 Information on feeding method is collated for the 12 NHS Boards participating in the CHSP-PS system and is published by ISD Scotland (all Boards except Grampian)

Breastfeeding at Birth

3.23 Information on breastfeeding at birth is collected at the first visit review with the public health nurse when the infant is around eleven days old. ISD Scotland data show that 60% of mothers were breastfeeding in total (including those using a combination of breastfeeding and formula feeding) and 56% were exclusively breastfeeding in Scotland at birth in 2009 (Figure 3). This is a slight increase from 56% total breastfeeding and 52% exclusively breastfeeding in 2001. As this information is collected at the first visit review it relies on the mother recalling the information and could therefore overestimate breastfeeding rates. It is notable that these data, covering approximately 90% of births in Scotland, suggest breastfeeding initiation rates are lower than reported by surveys, which may use different definitions and experience selective participation.

Figure 3: Breastfeeding Rates at Birth in Scotland by Year of Birth, 2001 to 2009

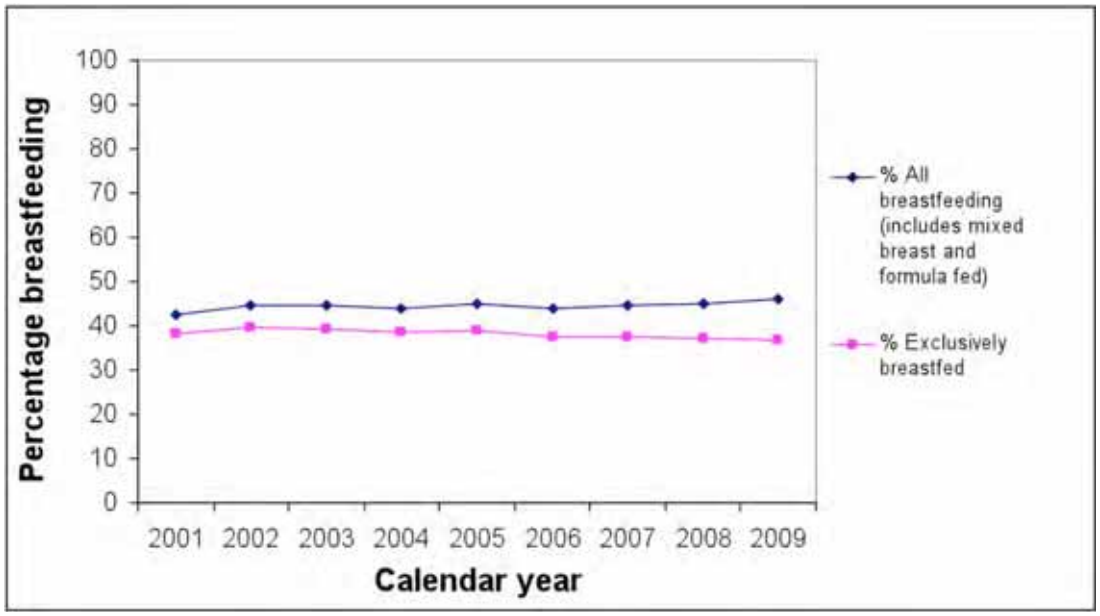


Source: ISD Scotland. Data for 2009 are provisional and are estimated to be around 99% complete.

Breastfeeding at the First Visit Review

3.24 In 2009, 46% of mothers in Scotland were breastfeeding in total (including those using a combination of breastfeeding and formula feeding) and 37% were exclusively breastfeeding at the first visit review (Figure 4). Breastfeeding rates at this ten day visit have changed little since 2001.

Figure 4: Breastfeeding at the First Visit Review in Scotland by Year of Birth, 2001 to 2009

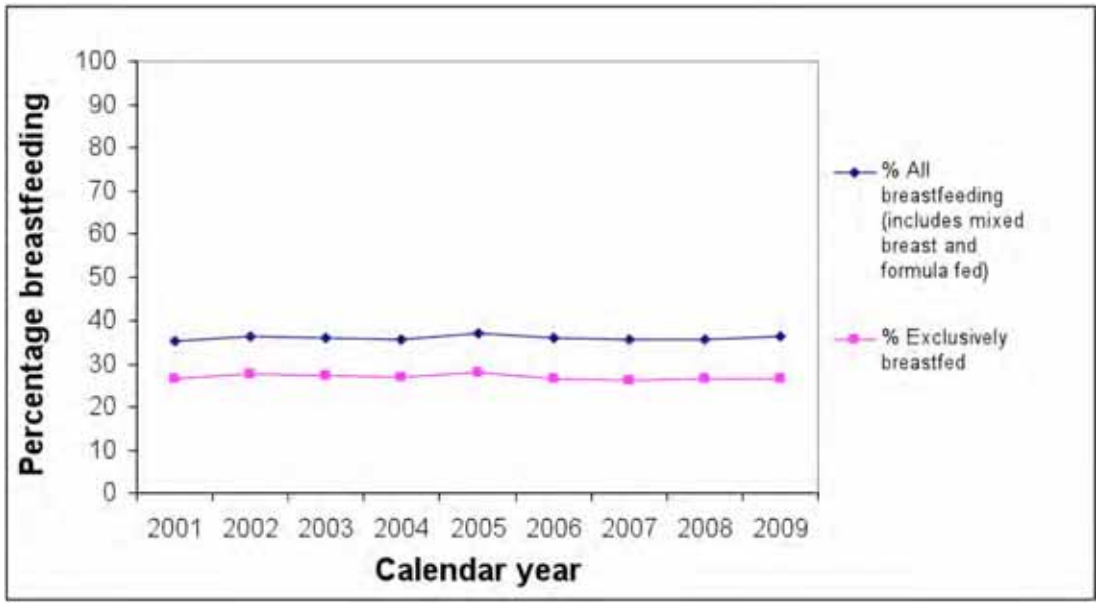


Source: ISD Scotland. Data for 2009 are provisional and are estimated to be around 99% complete.

Breastfeeding at the 6-8 week Review

3.25 At the 6-8 week review, 36% of mothers in Scotland were breastfeeding in total and 27% were exclusively breastfeeding in 2009 (Figure 5). The rates have changed minimally since 2001. The Scottish Government has set NHS Boards a health improvement target to increase the proportion of infants exclusively breastfed at 6-8 weeks to from 26.6% in 2006/07 to 33.3% by 2010/11.[66]

Figure 5: Breastfeeding at the 6-8 week Review in Scotland by Year of Birth, 2001 to 2009



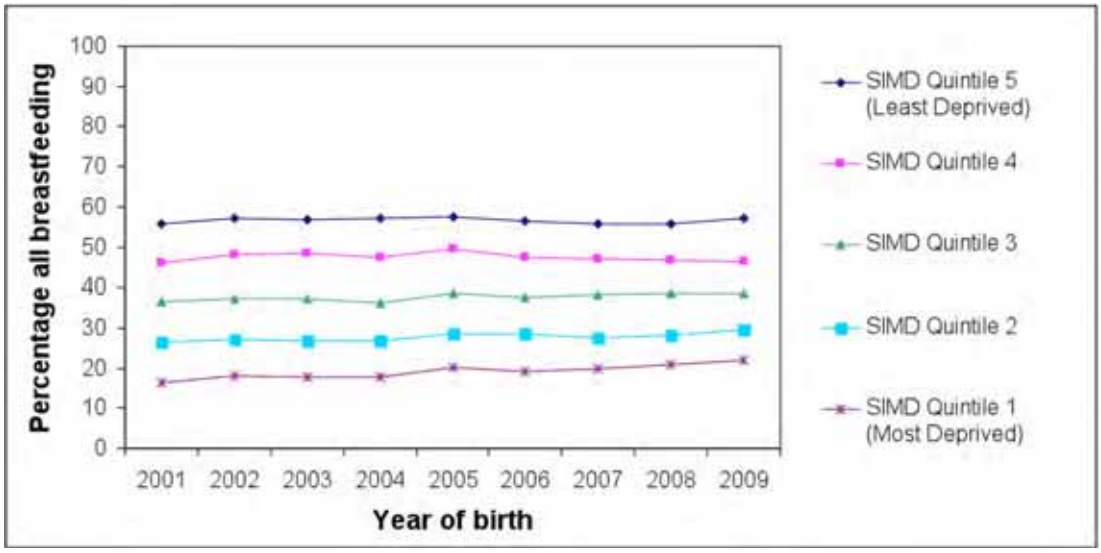
Source: ISD Scotland. Data for 2009 are provisional and are estimated to be around 90% complete.

3.26 After the 6-8 week review no further data is routinely collected on infant feeding method in Scotland. Survey data is available from the Infant Feeding Survey on the proportion of mothers breastfeeding up to the age of nine months. By six months, only 24% of mothers in Scotland were still breastfeeding – around one in three of the 71% who initiate breastfeeding.

Breastfeeding and Deprivation

3.27 There is an association between maternal deprivation and breastfeeding (Figure 6). This is seen at birth, the first visit review (when the infant is around ten days old) and the 6-8 week review. In 2009, 67% of mothers in the least deprived quintiles in Scotland were breastfeeding at the first visit review compared with 30% in the most deprived quintiles. At the 6-8 week review 57% of mothers in the least deprived quintiles were breastfeeding compared with 22% of mothers in the most deprived quintiles. The gap between the least and most deprived areas narrowed slightly between 2001 and 2009 because rates in the most deprived areas increased and rates in the least deprived areas were static (Figure 6). Similar trends were seen with breastfeeding rates at birth and at the first visit review.

Figure 6: Breastfeeding at the 6-8 week Review by Deprivation in Scotland, 2001 to 2009



Source: ISD Scotland. Data for 2009 are provisional and are estimated to be around 90% complete.

Breastfeeding and Maternal Age

3.28 Older mothers are more likely to breastfeed than younger mothers at both the first visit review and the 6-8 week review in Scotland. In 2009 only 15% of mothers aged 20 years and under in Scotland were reported to be breastfeeding at the first visit review compared with 60% of mothers aged 40 years and older. This was similar at the 6-8 week review with 9% of mothers aged 20 years and under breastfeeding compared with 52% of mothers aged 40 years and older. Data from the Infant Feeding Survey suggest this pattern is similar in all countries in the UK.

Formula Feeding

3.29 The Infant Feeding Survey collects data on formula feeding. The 2005 survey showed that 38% of mothers in Scotland had first introduced infant formula into their infant's diet at birth increasing to 98% by nine months of age. In the same year, 57% of mothers in Scotland were giving infant formula at all or almost all feeds by age 4-10 weeks.

3.30 The Infant Feeding Survey compared how mothers reported preparing infant formula with the recommended Food Standards Agency guidelines. Infant formula is not sterile and good hygiene practices are essential when preparing formula to decrease the chances of infants becoming ill. The main three recommendations are:

1. Ideally each bottle should be made fresh for each feed and formula milk should not be stored for future use.
2. Boiled tap water that has been allowed to cool for no more than 30 minutes should be used to make infant formula (natural mineral water should not be used as this contains high levels of minerals and can be harmful to the infant).

3. Water should be added to the bottle first before adding the powdered infant formula.

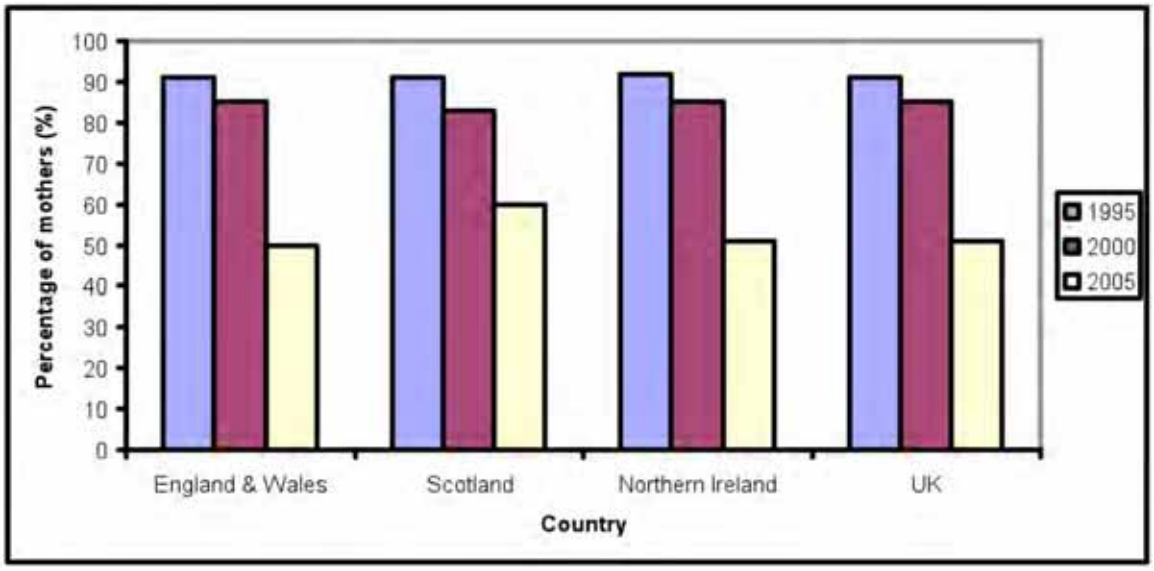
3.31 Only 10% of mothers using infant formula in Scotland followed all these recommendations.

3.32 The Food Standards Agency states that follow-on formula is not necessary in the infant's diet at any stage and instead full fat cows' milk should gradually be introduced into the diet from 12 months of age.[67] Follow-on milks are designed and promoted to be used between formula milk and the introduction of cows' milk at 12 months of age. Although follow-on milk is not suitable for infants under six months of age (as it is difficult for the infant to digest), 10% of mothers in Scotland had given follow-on milk to their infant before this stage.

Complementary Feeding (Introduction of Solid Foods)

3.33 There is a general shift towards mothers introducing solid foods into the infant's diet at a later stage which may have a beneficial effect on future levels of obesity in children (Figure 7). By four months of age 60% of mothers in Scotland participating in the Infant Feeding Survey had introduced solids into their infant's diet in 2005 compared with 83% in 2000 and 91% in 1995. By five months of age 85% of mothers in Scotland had introduced solids into their infant's diet in 2005 compared with 98% in 2000.

Figure 7: Percentage of Mothers who had Introduced solids at 4 Months of Age by UK Country, 1995 to 2005



Source: Infant Feeding Survey 2005

3.34 While these results show a general shift towards mothers following the revised WHO guidelines, only 2% of mothers in the UK in 2005 waited until six months of age before introducing solid foods into the infant's diet.[30] The nature and timing of weaning varies by the mother's socio-economic status with deprivation having a strong predictive effect on weaning before four months[31]. The Infant Feeding Survey found that women in managerial/professional occupations were

more likely to feed their infants fruit and vegetables rather than sweets or other snacks.[30]

3.35 Data on infant weight and weight gain in Scotland is not routinely collected. While the opportunity to measure and record infant weight is possible during routine appointments within the NHS, there are currently no mandatory growth measurements recorded following the 6-8 week review until the infant starts school at around 5 years of age.

3.36 After the initiation of weaning no recent large scale studies on nutritional status or nutrient intakes of vitamin D, iron or calcium in infants in Scotland were identified. However the Avon Longitudinal Study of Parents and Children (ALSPAC) study provides more recent evidence from southern England and suggests that while vitamin D levels were still below the RNI, iron intake was higher for this sample of infants at eight months and 12 months of age with only a small proportion of infants found to be anaemic.[68]

Conclusion

3.37 There is neither sufficient nor sufficiently timely data on maternal and infant nutrition in Scotland. Some of the main sources have limited Scottish samples and are conducted very infrequently. Different sources report their results in different ways, thus comparison between sources, or over time, is difficult. The sources available do not enable a comprehensive description of maternal and infant nutrition in Scotland in 2010 to be given. The pace of improvement in maternal and infant nutrition appears, however, to be slow.

What Next?

3.38 There are many gaps and inadequacies in the available information but improvements are being made. The new format of the UK National Diet and Nutrition Survey of adults and children has an increased Scottish sample (results available in 2012). A new UK nutrition survey for infants (age 4 to 18 months) is being piloted. The scope for acquiring better nutrition information from existing Scottish surveys, such as the Scottish Health Survey and Growing Up in Scotland study, should be explored. There may also be potential for routine administrative and clinical data sources to provide national information.

3.39 Assessing the impact of the Maternal and Infant Nutrition Framework will require a monitoring framework that is consistent, scientifically well-founded and achievable without significant diversion of resources that might be used to implement the Framework. The maximum use should thus be made of existing routine administrative, clinical and survey data sources.

Chapter 4: Current Activity across Scotland

4.1 Between 1996 and 2005 a National Breastfeeding Adviser was appointed to work with NHS Boards to stimulate the development of strategies to support breastfeeding. An audit of NHS Boards' action on breastfeeding, carried out in March 2002, found that the majority of Boards had set up breastfeeding strategy groups and developed breastfeeding strategies that addressed the major factors influencing breastfeeding success.

4.2 Since then, a number of national and local initiatives have been implemented to improve both the incidence and duration of breastfeeding in Scotland. Although some local activities have focused on improving complementary feeding practices and the nutrition of pregnant women, there has been less attention on these areas at national level. In 2008 a survey was carried out to provide a more up-to-date understanding of activities designed to improve maternal and infant nutrition across Scotland.[69]

Methodology

4.3 Evidence was gathered through the use of a questionnaire. This was been designed using Questback survey design and administration software and was issued electronically to individual e-mail addresses.

4.4 Five separate questionnaires were designed to capture the range of activities occurring across Scotland including breastfeeding, maternal nutrition, nutrition of children under five, local authority activities and community and voluntary sector activities. In general, each of the surveys covered the following topics; joint planning, training, education, information relating to specific initiatives, actions post-Chief Executive Letter 36 (2008)[70] and community and voluntary sector links. As previously described, the scope of the Framework includes infants up until their third birthday. However, given the amount of work in recent years to improve the nutrition of children in early years settings through implementation of the Nutritional Guidance for Early Years[71] and Adventures in Foodland[72], it was considered more practical to ask Boards to report on activity targeted at children under five.

4.5 The research sample consisted of respondents from NHS Boards, Local Authorities and the voluntary sector. Potential respondents were identified by the Scottish Government Infant Nutrition Co-ordinator and questionnaires were sent electronically to all those with an identifiable e-mail address. The main sample included: NHS Boards Heads of Midwifery, NHS Boards Public Health Nutritionists, NHS Boards Breastfeeding/ Infant Feeding Leads, Community and Voluntary Sector contacts via Community Health Exchange, Community Food and Health (Scotland) and Local Authority contacts. Data was collected between November and December 2008.

4.6 A report of the results from the survey was produced and can be obtained via email from the Scottish Government Maternal and Infant Health Branch at: maternalandinfanthealth@scotland.gsi.gov.uk

4.7 The report gives a snapshot of services provided at NHS, local authority and community level, it does not provide a comprehensive overview of service provision across Scotland. A summary of the results is presented here.

Breastfeeding

4.8 All 14 Health Boards responded to the questionnaire on breastfeeding. Each Board had Baby Friendly accreditation, in line with the UNICEF Baby Friendly Initiative or was progressing towards accreditation in their maternity unit(s). All Community Health Partnerships had plans to progress towards accreditation. The table below outlines actual progress at December 2010.

Baby Friendly Status	**Hospital**	**CHP**
Intent Registered	Balfour Hospital NHS Orkney	3 CHPs NHS Forth Valley 4 CHPs NHS Lothian 1 Integrated CHP NHS Orkney 1 CHP NHS Shetland
Implementation Visit	Uist Maternity Unit NHS Western Isles	1 CHP NHS Dumfries & Galloway 3 CHPs NHS Fife
Certificate of Commitment	Galloway Community Hospital NHS Dumfries & Galloway St John's Hospital, NHS Lothian	None
Stage 1	Cresswell Maternity Unit NHS Dumfries & Galloway Aberdeen Maternity Unit, Dr Gray's Hospital NHS Grampian 8 small midwifery-led units NHS Highland	3 CHPs NHS Ayrshire 10 CHPs NHS Glasgow & Clyde 4 CHPs NHS Highland 2 CHPs NHS Lanarkshire 3 CHPs NHS Tayside
Stage 2	Stirling Royal Infirmary NHS Forth Valley Wishaw Maternity Unit NHS Lanarkshire Ninewells Hospital NHS Tayside	North Glasgow CHP Mid Highland CHP North Highland CHP

Accredited	Ayrshire Maternity Unit, Arran War Memorial Hospital NHS Ayrshire & Arran Forth Park Maternity Hospital NHS Fife Royal Alexandra Hospital, Southern General Hospital, Vale of Leven Hospital, Inverclyde Royal Infirmary NHS Glasgow & Clyde Simpson's Maternity Unit NHS Lothian Gilbert Bain Hospital NHS Shetland Perth, Arbroath & Montrose Community-led Units NHS Tayside Caithness General Hospital and Raigmore Hospital, NHS Highland	Bridgeton Health Centre, Anniesland, Bearsden & Milngavie Localities NHS Glasgow & Clyde Coatbridge Health Centre NHS Lanarkshire

4.9 All but one Board provided breastfeeding training for midwifery and public health nursing staff and in most Boards breastfeeding training was provided for clinical and health support workers.

GP Training in Infant Feeding – NHS Tayside

GP registrars in East Deanery (Tayside and North East Fife) attend a two day course on women's health as part of their induction programme in year three of their specialist training programme in General Practice). Trainees at this stage will have completed six months in General Practice and 18 months in hospital posts. For the past three years the course has included a session on infant feeding problems. The teaching resource used is the UNICEF Baby Friendly Initiative GP training pack which has been modified to include sections on prescribing for breastfeeding mothers and this includes contraception. The session is conducted by a GP with a special interest in maternal and infant nutrition. The course has received good feedback in evaluations. Doctors comment that the course is very GP focused, concentrating on the issues they are likely to encounter in clinical practice. The same course is delivered to GPs in practices working towards Baby Friendly accreditation. It is delivered in this case by a GP and NHS Tayside's Breastfeeding Coordinator.

This year's induction course for GP registrars will be broadened to take into account the changes from the Keeping Childbirth Natural and Dynamic project and the recommendations of the Confidential Enquiry into Maternal and Child Health report (2007).[20] This means that the GP trainees will also learn about preconceptual and early pregnancy nutritional advice for women.

For further information contact: Dr Morag Martindale, GP, NHS Tayside, mmartindale@nhs.net

4.10 All but four Boards had NHS led breastfeeding support groups in their area with larger Boards having proportionately more groups. In most cases information collected from these groups was used for monitoring or evaluation.

Feeding Matters: promoting choice & inclusiveness in antenatal education – NHS Lothian

The NHS Lothian infant feeding parent education toolkit is an innovative educational resource, developed to enable professionals to confidently empower parents to make and implement informed feeding choices as well as increasing their confidence in their continued ability to meet their baby's nutritional needs. The package provides a comprehensive framework to support the delivery of a two hour infant feeding antenatal session. It comprises of a skills workbook and an interactive toolkit containing all of the equipment and practical resources needed to deliver the programme. The skills workbook contains lesson plans and a variety of teaching strategies for each of the key themes. It is designed to facilitate all aspects of adult learning and is facilitated through group work, discussion and problem solving. It is supported with relevant research and references and approved by the UNICEF UK Baby Friendly Initiative.

The programme covers breast and formula feeding in order to develop an inclusive service that is appealing to all parents, with a particular aim of reaching more vulnerable groups who often dismiss traditional breastfeeding workshops as not relevant to them. It forms a key component of the parent education syllabus but can also be delivered as a stand-alone session for those who choose not to attend a full course of childbirth education.

For further information contact: Carolyn Worlock,
carolyn.worlock@nhslothian.scot.nhs.uk

4.11 Eleven of the Boards had a peer/mother to mother support programme in their area – in some cases this had been in place since 1997. In a few Boards, these support programmes were run in partnership with the voluntary sector, for example the Breastfeeding Network; and in others these were NHS led. In most Boards programmes were targeted to specific areas with low breastfeeding rates. The peer/mother to mother support programmes consisted entirely of volunteers and unpaid workers, and were largely dependent on fixed term funding. Only half of the 14 Boards routinely collected data on programme activities, or produced evaluation reports to assess the impact of the programme on local breastfeeding rates.

Community Mothers Breastfeeding Support Programme – NHS Lanarkshire

The programme aims to contribute to improving initiation and continuation rates of breastfeeding in targeted areas of Lanarkshire and to maximise the potential of volunteers in terms of their life-long learning. Community Mothers recruit and train local women as volunteers to provide peer support to breastfeeding mothers in the local maternity unit, in their home and by telephone. Volunteers attend breastfeeding workshops, teenage pregnancy groups and health events in their own communities. Volunteers' skills increase as a result of the training and experience gained with improvement in confidence, communication and customer-facing skills reported. A number of volunteers have gone on to pursue careers in midwifery, nursing and teaching. Between April 2008 and March 2009 824 women were supported by Community Mothers and of those 57.3% (472) were exclusively breastfeeding at six weeks compared to a rate of 18.7% for NHS Lanarkshire as a whole. For further information contact: Shona Brownlie, Community Mothers Programme Manager, NHS Lanarkshire, shona.brownlie@lanarkshire.scot.nhs.uk

4.12 Around half of the Boards had breastfeeding friendly/welcome schemes in their area which were launched between 2000 and 2007. All but one Board either had regular forum meetings with infant formula company representatives, or intended to set one up. The membership of these forums consisted of a variety of staff and included tasks such as information dissemination to the wider workforce including reviewing research papers, meeting with formula representatives, and monitoring the WHO International Code on marketing of breast milk substitutes.

4.13 Around half of the Boards had work in progress on breastfeeding involving nurseries and most were involved in promoting breastfeeding in schools.

Breastfeeding Friendly Nursery Programme – NHS Glasgow & Clyde

The programme aims to promote breastfeeding as the cultural norm by staff increasing knowledge and awareness , reviewing the resources used within nurseries and providing a welcoming atmosphere to breastfeeding mothers. A two hour training session is delivered to a minimum of 80% of staff in pre-school establishments. During the session staff discuss how culture impacts on breastfeeding, how children are influenced by their surroundings and the resources they use, and why breastfeeding is important. The session explores attitudes towards breastfeeding and informs staff on the Breastfeeding etc (Scotland) Act 2005. There is an opportunity for practising scenarios which arise becoming a Breastfeeding Friendly facility. On completion of the training and review of resources, the facility will become Breastfeeding Friendly and promote an environment where breastfeeding is seen as the natural way to feed infants and young children. To date, 62 establishments within the five Glasgow City CHCP's have participated in the programme with a total of 440 staff having attended a session and 38 have been awarded Breastfeeding Friendly Nursery status. For further information contact: Lesley Davidson, Breastfeeding Public Acceptability Development Officer, NHS Glasgow & Clyde lesley.davidson@ggc.scot.nhs.uk

The majority of Boards said that breastfeeding was included either in their local authority Single Outcome Agreement, their Joint Improvement Plan or their local authority Children's Services Plan.

Maternal Nutrition

4.14 Ten of the 14 Health Boards responded to the questionnaire on maternal nutrition.

4.15 In half of the Board areas specific work was in progress to promote uptake of Healthy Start, particularly in regeneration areas. Midwives working in a variety of specialist clinics including smoking cessation, substance misuse and obesity clinics also identified eligible women and provided ante-natal information and advice about vitamins. Only half of the respondents were aware of an online CPD course for health professionals on the Healthy Start website and staff in only three areas had completed the course.

YM2b: support and preparation for parenting for young mothers in West Lothian

Part of the Sure Start West Lothian Young Parent's Programme, YM2b (Young Mums to be) is a well established twelve to fourteen week rolling programme aimed at providing support, information and education to pregnant women under twenty. As well as providing information on labour and birth, benefits, practical baby care skills, careers and infant feeding, the programme includes two sessions on nutrition in pregnancy. Recognising that very young pregnant women are a particularly nutritionally vulnerable group, as well as providing a healthy lunch each week, the course includes a session on healthy eating in pregnancy. For this session, the participants prepare their own lunch, encouraging the development of some cooking skills. The second session takes place in a local supermarket, with participants shopping for a 'typical' basket which usually includes processed foods, looking at the nutritional value of the food and discovering if it is possible to buy healthier choices at a lower cost. This session encourages the young women to consider their nutritional needs during pregnancy, and following the birth of their baby.

YM2b has been running for the last six years in West Lothian. In combination with provision for young mothers after birth and young fathers as part of a coordinated intervention, it provides an excellent opportunity to support a highly vulnerable group to improve their nutritional status and that of their children.
For further information contact: Paula Huddart, Sure Start Manager, West Lothian Council: paula.huddart@westlothian.gov.uk

4.16 In five Boards there was specific work underway to raise awareness of folic acid supplementation before and during pregnancy, mainly targeted at particular groups such as those who had pregnancy loss or are at high risk and attend preconception clinics, with a history of epilepsy or neural tube defect, cardiac or endocrine problems, diabetes or hypertension.

4.17 Only three Boards had work in progress to raise awareness of Vitamin D supplementation during pregnancy.

4.18 Just over half of Boards had an obesity strategy although maternal obesity was not included in them all. However, the majority of Boards had protocols in place for pregnant women identified as obese where, in most areas, women with a BMI > 35 are referred for specialist care.

4.19 In the majority of Boards maternity staff had not received any training on general nutrition during pregnancy. There was evidence of some boards focusing attention on specific groups or areas, such as pregnant teenagers and those living in areas of deprivation. There were no examples of specific work to improve the nutrition of pregnant women from particular ethnic groups. In half of the areas, Boards were working with community or voluntary organisations such as community food initiatives, healthy living centres or child and family centres, to provide practical advice on shopping and budgeting as well as development of cooking skills.

The Family Nurse Partnership Programme: reducing inequalities – NHS Lothian

The Family Nurse Partnership Programme is an intensive home visiting programme, delivered by nurses, for teenage mothers resident in the city of Edinburgh having their first baby. It starts in early pregnancy until the baby reaches two, and relies on developing a supportive therapeutic relationship between the nurse and the family. Visits are structured and cover a number of domains including personal and environmental health. Family Nurses use a wide-range of materials that include core public health resources that are available through existing universal services.

Maternal nutrition, support for breastfeeding and child nutrition are integral components of the programme and result in parents and carers having the confidence & skills to implement good feeding and eating patterns. It is not simply about changing health behaviours, it is about developing the capacity of the parent to make choices which will improve the outcomes for them and their child.

There is a strong focus on the health and well-being of the child, as well as the mother as the primary care giver, however the programme also includes other family members where possible and actively engages fathers in order to support them in sustaining the aims of the programme. The broad aims of the programme are to:

- improve pregnancy outcomes with a focus on maternal health
- improve child health & development and future school readiness & achievement and
- improve parents' self sufficiency.

The programme's routinely collected data, which will be used in the external evaluation, report on a range of infant and maternal health outcomes, including breastfeeding initiation and continuation rates and the uptake of Healthy Start.

For further information contact: Sally Egan, Associate Director/Child Health Commissioner, NHS Lothian sally.egan@nhslothian.scot.nhs.uk

4.20 Although half of respondents reported maternal nutrition was included in their local authority's Joint Health Improvement Plan, several acknowledged that nutrition

and obesity are key priorities, therefore, work was more generally focused on wider community food projects aimed at families with young children.

Nutrition of Children Under Five

4.21 Ten Boards responded the questionnaire on nutrition of children under five.

4.22 In all ten areas work to improve weaning practices was underway. Some boards had been running practical weaning sessions including advice on cooking, practical cookery/visual tool kits, support and training of relevant staff including community workers on early years and focusing on areas of inequalities. Eight respondents said a focus was on specific areas and groups for example, areas of deprivation, low income and vulnerable groups. In some areas health visitors and public health nurses offer weaning advice in a group setting so families have the added advantage of learning from each other.

Tots to the Table – Burnfoot Community School and Healthy Living Network, Scottish Borders Council

This 7 week programme is delivered to support families with babies of weaning age and toddlers with planning family meals. The programme has been developed as a result of an evaluation of a previous programme delivered to mums with babies of weaning age, Blend for Baby, where mums told of the difficulties they experienced in planning meals for their family and then having to separately consider what to feed their weaning baby.

Tots to the Table allows parents to plan, cook and then share meals with their toddler, as well as allowing staff and parents to address issues of fussy eaters and food phobias, with a clear focus on the social aspect of family meal times. In the course of a session the school home-link worker and healthy living network worker work directly with parents giving them the opportunity to plan and then shop for a balanced meal, using health guidelines (including reading food labels); to develop their cooking skills using recipes provided and then to share the meal with their toddler. Parents also complete an audit of their kitchen and then are able to use funding to purchase identified essential utensils. Crèche is provided where food related play and safety sessions are undertaken with the children and repeated with parents. In evaluating the project parents reported such things as “we now eat together as a family”; a raised awareness of supports that are available; a fussy eater now enjoying a much more varied diet due to the encouragement to try different sorts of food.

For more information contact: Gillian Neish gneish@scotborders.co.uk

4.23 In eight Boards, work was being done to improve early years nutrition and oral health in the under fives, in particular provision of training courses for nurseries. Several Boards are participating in the roll out of the ‘Childsmile’ programme. In nine Boards there was also specific work underway to improve the nutrition/food and drink provision of children in nurseries. This work involved several agencies including, early years and nursery staff – nursery teachers, playgroup leaders and childminders. Community dietitians also deliver training on the ‘Nutritional Guidance for Early Years’, which includes support for the development of food and health

policies for each nursery, provision of resources including parental packs. Slightly fewer Boards (7) had work underway to improve the nutrition/food and drink provision for children cared for by childminders. There were some examples of childminders working in partnership with local oral health groups, and through childminding networks. In one area training updates have been provided for childminders by an NHS Health Scotland staff member, an NHS paediatric dietician, and a health improvement programme lead from early years

Scottish Commission for the Regulation of Care (Care Commission)
The Care Commission was set up in 2002 to help improve care services in Scotland. These services include child minders, foster care and adoption services, nurseries, day care services, care homes and private hospitals. As Scotland's national regulator of care services, we register and inspect services, investigate complaints and, where necessary, take legal action to make sure a service is meeting the standard of care it should be. We publish our findings in inspection reports to encourage services to improve the quality of the care they provide. National Care Standards set out the standard of care that people can expect from any care services they use. The standards are written from the point of view of people who use care services. Published by Scottish Ministers, the standards cover every type of care service.

'The National Care Standards for early education and child care up to the age of 16' set out the standards of care that children and their parents/carers can expect. According to the National Care Standards, children attending day care services can expect to eat well. National Care Standard 3 states:

- *Each child or young person will be nurtured by staff who will promote his or her general wellbeing, health, nutrition and safety.*
- *Children and young people have opportunities to learn about healthy lifestyles and relationships, hygiene, diet and personal safety.*
- *Children and young people have access to a well-balanced and healthy diet (where food is provided) - which takes account of ethnic, cultural and dietary requirements, including food allergies.*

Following the publication of the Nutritional Guidance for Early Years in 2006 the Care Commission actively promoted this best practice and carried out a focused inspection on standard 16 in early years services. Services were asked how they were implementing the guidelines and the findings were published in the individual's service report.
For further information contact: enquiries@carecommission.com

4.24 Around half of Boards were doing work to improve the uptake of Healthy Start. Some Boards had a vitamin distribution programme, with one giving vitamins to pregnant women at antenatal clinics and a supply to last until the baby's first birthday. Mothers were also able to collect vitamins at local clinics though in practice not all clinics stocked them. One Board reported they were taking part in a Healthy Start vitamin distribution pilot involving community pharmacies. A few areas (3) were involved in work to target beneficiaries of Healthy Start, to support them in improving their own and their family's dietary intake. Community food development workers provide much of this support, as do health visitors and public health nurses – to

encourage uptake of Healthy Start and to improve families' nutritional knowledge. Only half of respondents were aware of an online CPD short course for health professionals on the Healthy Start website and in only one area had relevant staff completed this training. None of the Boards questioned had made the online CPD course for Healthy Start mandatory for professionals in their area.

Healthier, Wealthier Children: a child poverty & financial inclusion project – NHS Glasgow & Clyde, Glasgow City Council & Glasgow Centre for Population Health (GCPH)

This pilot project, funded by the Scottish Government Social Inclusion Division, will run for 15 months. The main purpose of the project is to support the development of expertise for addressing child poverty within financial inclusion services and within health and other early years' service structures. The project will employ income maximisation advisers in eight Community Health (and Care) Partnerships (CHCPs) to provide income maximisation advice services for pregnant women and families with young children and target those who are at risk of experiencing child poverty. It will raise awareness with frontline health and early years staff of the potential for financial inclusion services to benefit children and will create opportunities for their service users to access local income maximisation advisors for direct advice and referral on where necessary. Development officers will work across all CHCPs, maternity, addictions and mental health services to establish sustainable referral pathways and guidelines for best practice in order to ensure that mainstream services continue to offer income maximisation support to the target group beyond the lifetime of the project. The project builds on work to improve uptake of Healthy Start.

Glasgow Centre for Population Health will deliver a robust and comprehensive evaluation programme comprising qualitative and quantitative measures of success. The evaluation will define outcomes from different models of practice across the health board area and assess implications for participating families, service structures and sustainability within mainstream services.
For further information contact: Pauline Craig, Glasgow Centre for Population Health, pauline.craig@drs.glasgow.gov.uk

4.25 Eight Boards had examples of work in progress within community or voluntary organisations (such as community food initiatives, healthy living centres or child and family centres) to improve the nutrition of children under the age of five. Community food development workers support and deliver programmes through healthy living centres, community centres and help other community and voluntary workers deliver positive practical nutrition sessions to parents on early years nutrition. Some of these initiatives are funded through community food grant schemes, nutrition and dietetics budgets and the Fairer Scotland fund. The key objectives of this work include enabling a number of activities such as growing vegetables, improving cooking skills, using fruit as snacks, making healthy choices, developing awareness, knowledge and skills around food for families. The anticipated outcomes would be raised awareness of healthier foods among children and parents, enabling people by providing knowledge and practical skills to make healthier choices.

4.26 Eight Boards had an obesity strategy that includes children under the age of five. Obesity strategies included training sessions with different practitioners, prevention through a partnership approach, working with local authorities, targeting early years and young people, supporting family and individual weight management, increasing the number of people eating healthy diets, increasing physical activity levels, creating environments that support healthy eating and physical activity, and influencing local producers, manufacturers and retailers toward supporting healthy food produce.

4.27 Most respondents (7 of the 11) said that work to improve the nutrition of children under five was included their local authority/authorities' Single Outcome Agreement. Only one of these was aware of local authority funding to support this work. In five areas, work to improve nutrition in the under fives was included in the local authority's Joint Health Improvement Plan but none of these respondents were aware of local authorities having allocated funding to this work. Eight respondents said that work to improve the nutrition of children under the age of five was included in local authority's Children's Services Plan and three of these were aware that funding was available for this work.

Early Years Self- evaluation Collaborative – Community Food & Health (Scotland) (CFHS)
This pilot support programme was delivered jointly with Evaluation Support Scotland (ESS), to support six community-led and community based food and health initiatives. CFHS had identified that community food and health initiatives needed support to improve their evaluation skills and demonstrate their role in delivering health improvement outcomes in Early Years. All the initiatives involved shared common objectives to deliver activities in low-income communities addressing health inequalities and access to healthy and affordable food. Activities included growing food, shopping and cooking sessions with the aim of influencing and sustaining better nutritional outcomes. Some initiatives engaged a range of local partners to deliver activities jointly.

The collaborative supported six initiatives to collect evidence to show their work was making a difference in low-income communities. This was important so that clear outcomes could be shared with others especially policy makers and funders, to increase understanding of which approach works, for whom, and why. A common outcome for all was the unique value of consistent engagement with families leading to well developed relationships with future activities. Core outcomes focused on families gaining knowledge, skills and confidence to engage with food, change eating habits as well as buy and prepare food with fresh ingredients. The benefit of peer support especially with vulnerable families was also evident. An EYSEC logic model was used to describe the contribution that the collaborative and other initiatives working in Early Years are making towards national outcomes.
For more information visit
www.communityfoodandhealth.org.uk/about/currentwork.php

4.28 Half of the respondents to this section (6) were aware of current or recent work having been carried out in their area to improve the nutrition of children under the age of five. Examples included Boards encouraging community groups and early years providers to raise awareness and availability of local fresh produce, providing grants for access to produce and for extra staff trained in nutrition, identifying gaps in improvements in under five nutrition, and targeting vulnerable groups.

Local Authority Activities

4.29 There were a total of only six local authority respondents and so these results should be treated with caution and do not provide a representative description of local authority activity to improve maternal and infant nutrition.

4.30 Only two of the six said that their local authority was promoting the nutrition of pregnant women. One local authority was carrying out work in partnership with their local NHS Board, and two were supporting community and voluntary organisations, to improve nutrition of pregnant women. Where support was being provided this included helping young families, including pregnant women, in disadvantaged areas to access affordable healthy food and helping provide information relating to pregnancy and parenthood.

4.31 Local authorities were more involved in work to promote breastfeeding or support employees returning to work who wish to continue to breastfeed. Five local authorities said that work was in progress to support breastfeeding women returning to work. Some local authorities have a directory of baby-friendly providers, with premises that provide facilities such as the provision of suitable rest areas for breastfeeding mothers. In three cases, this work to promote breastfeeding included community or voluntary organisations, such as community food initiatives, healthy living centres, child and family centres. All local authority respondents stated that this work is part of a Single Outcome Agreement to support the breastfeeding health improvement target, and in three local authorities funds had been allocated to support this work. In addition breastfeeding was included in their local authority Joint Improvement and Children's Services Plans, with some focusing on regeneration areas and groups where there had been little change.

Promoting and Supporting Breastfeeding: a local authority's role – East Ayrshire Council

East Ayrshire Council recognises that promoting and supporting breastfeeding is not solely an NHS activity. There are many ways in which all partners, including local authorities, can work towards changing culture and supporting breastfeeding women and babies. In response to reports that breastfeeding rates are remaining stubbornly low, and a Critical Issue Review by the NHS, East Ayrshire Community Health Partnership remitted East Ayrshire Council to develop a plan to widen the range of actions to promote and support breastfeeding. Plans have been developed with the support of the NHS and the voluntary sector. These actions are being integrated into the Improving Health and Wellbeing Theme of the Community Plan.

- Promoting National Breastfeeding Awareness Week in Libraries and Local Offices
- Targeting pregnant staff with information during National Breastfeeding Awareness Week
- Developing a staff Breastfeeding and Returning to Work Policy
- Signing up to the NHS's Breastfeed Happily Here Scheme by the Chief Executive, as a whole Council and rolling this scheme out initially to libraries and local offices, with phase 2, targeting nurseries and family centres, schools and community centres, currently underway
- Working with NHS to develop a checklist and resource pack for nurseries and family centres to assist them in promoting and supporting breastfeeding within their establishments
- Working with the NHS to provide schools with information and resources that they can use to address the topic of breastfeeding within the Curriculum for Excellence framework
- Ensuring that breastfeeding is integrated into our Catrine Government Pathfinder Initiative
- Working with NHS Health Scotland and our local NHS to implement the recommendations of the Social Marketing work taking place in northwest Kilmarnock.

For further information contact: April Masson april.masson@east-ayrshire.gov.uk

4.32 Four of the six local authorities had work underway to improve weaning practices. This was in partnership with public health nurses, dietitians and community food projects, in addition to voluntary sector family support organisations. Training was provided by the NHS, and advice and information provided to parents as required. All of those working in this area were focusing on mother and infant nutrition, targeting vulnerable groups in disadvantaged areas, for example regeneration areas.

4.33 All six local authorities were doing work to improve the food and drink provision in nurseries and by childminders. Several initiatives were taking place including provision for healthy eating, with fruit and vegetable grants, using the Nutritional Guidance for Early Years, providing training for childminders on these guidelines and provision of information and resources on weaning to parents.

4.34 Three of the six local authorities were working with community or voluntary organisations, such as community food initiatives, healthy living centres or child and family centres, to improve the nutrition of children under the age of five.

Community and Voluntary Sector Activities

4.35 There were 12 respondents from the community and voluntary sector so, again, these results should be treated with caution and do not provide a representative description of the community and voluntary sector activity to improve maternal and infant nutrition.

4.36 Half of the 12 respondents were involved in work to promote the nutrition of pregnant women, through a number of initiatives including fresh fruit and vegetable schemes, shopping courses, healthy eating cooking courses and health education courses – including referrals of substance misusing pregnant women. The key focus of this work included provision of information and advice to mothers in deprived communities about healthy weaning foods, cooking skills, and potential impacts of substance misuse on the unborn baby. The work was carried out with a range of partners including integrated children's services, health visitors, community dietitians, oral health promoters, community midwives, health improvement managers and GP's.

4.37 Three of the community and voluntary organisations surveyed were supporting breastfeeding initiatives. This work included supporting and encouraging uptake of breastfeeding new mothers and promoting breastfeeding in public areas. Funding came from a number of sources including NHS core budgets.

4.38 There were more examples (10) of community and voluntary organisations being involved in work with families with children to improve weaning practices. Examples included holding healthy weaning classes with mother and toddler groups, practical cookery classes for families and demonstrations at weaning fayres and breastfeeding peer support. All respondents said that the work was targeted at specific groups or areas.

Parents Cooking Group, Gowans Child & Family Centre, Perth
The purpose of the group is to improve participants' basic cooking skills, basic nutrition and hygiene awareness. Sessions cover product labelling, health and safety in the cooking environment, weekly menu and shopping planning, budgeting, preparing and cooking meals. The target group is parents with children under the age of five attending the Centre which is situated in a regeneration area. Staff work with some of the most difficult to engage parents and carers with a range of issues including poor attachment relationships, substance misuse, lack of finance, low self esteem and negative experience of the education system.

When the parents join the group they are asked to complete a questionnaire, this gives an indication of the types of meals they are making at present and the facilities they have at home. Sessions are then modified to suit the individual needs of the parents. Parents are encouraged to use the skills learned at home and to try to prepare cost effective nutritious meals for their families, especially their young children. Evaluation is carried out at the end of the course to determine what skills have been learned and if family eating habits have changed.
For further information contact: Norma Aberdein, Gowans Child & Family Centre, naberdein@pkc.gov.uk

4.39 All the community and voluntary organisations surveyed said that work was in place to improve the nutrition of children under the age of five. This work included healthy eating and cookery courses and provision of fresh fruit to nurseries. The key objectives of this work included raising awareness of the importance of a healthy balanced diet, especially on a low income, ensuring that children and parents have access to a variety of choices and information, getting parents to learn about different food groups, and encouraging healthy eating in the family home.

4.40 Funding came from a number of sources including grants from the Fairer Scotland Fund, the NHS, community health initiatives, and lottery funding. Various groups and organisations were involved in this type of work including nurseries, playgroups, parent and toddler groups, healthy living initiative staff, local volunteers, as well as NHS and local authority staff. In most cases (9) work was being targeted at specific groups such as young parents with addictions or areas of deprivation.

Conclusion

4.41 The analysis indicates that support for breastfeeding is well established across most parts of Scotland. Several Boards have achieved UNICEF Baby Friendly accreditation in their maternity units, and although all Community Health Partnerships (CHPs) have plans to progress this, no CHP has accreditation across all community premises. The breastfeeding health improvement target may have been a useful tool in focusing attention on this within NHS Boards and also local authorities. In all cases, Health Boards lead work on breastfeeding with some examples of partnership working with local authorities and the community and voluntary sector to deliver specific programmes. Reliance on volunteers and short-term funding emerges as an issue which may affect the sustainability of peer support programmes.

4.42 Work on maternal nutrition is less well developed across all service providers for example, only around half of Boards are involved in specific projects or programmes (including maternal obesity). This requires further consideration as evidence increasingly points to the importance of maternal health in determining long-term health outcomes for the child and therefore future generations. Where programmes had been developed these appeared to mostly focus on specific groups or areas e.g. teenage mothers, deprived areas. This would appear to be in line with recommendations in Equally Well. Provision of training for maternity staff on general nutrition including the importance of appropriate vitamin supplementation during pregnancy is lacking across all Boards although work to support implementation of Healthy Start at national level may provide an opportunity to address this.

4.43 Most Boards were involved in programmes to promote nutrition amongst the under fives. Much of the activity involved working with local authority and community and voluntary sector partners – for example to deliver projects in nurseries. Only half of Health Boards had a childhood obesity strategy.

4.44 Community and Voluntary sector organisations are playing an important role in delivering projects and programmes to support maternal and infant nutrition – often working in partnership with Health Boards and Local Authorities. In particular the organisations surveyed were focusing particularly on nutrition amongst the under fives and in many cases projects were targeted on those considered most at risk. Sustainability of funding is a key issue for these groups and, in this context, the importance of information on effectiveness cannot be overstated.

4.45 Chief Executive Letter 36 'Nutrition of women of childbearing age, pregnant women and children under five in disadvantaged areas' with an associated funding allocation of £19 million was issued to NHS Boards in September 2008, therefore, at the time of the survey (November/December 2008), local plans were at an early stage. In the intervening time it is likely that Boards will be much further ahead not only with their planning processes but with implementation of local programmes. Monitoring of progress with this will provide further insight into progress to improve maternal and infant nutrition.

Chapter 5: Process for Development of the Framework

Formation of Strategy Group

5.1 Representatives from key organisations with an interest in maternal and infant nutrition research, policy and practice were invited to become members of the Maternal and Infant Nutrition Strategy group. Membership of the Strategy group is listed in Appendix 1. The overall aim of the group was to work with the Infant Nutrition Co-ordinator to develop a Maternal and Infant Nutrition Framework and Action Plan for Scotland. The objectives of the group were to:

- Identify and share current activity in progress across Scotland to improve maternal and infant nutrition;
- Review the evidence base on maternal and infant nutrition and identify gaps in research and propose future research to inform policy;
- Recommend specific actions that will contribute to improving maternal and infant nutrition;
- Facilitate and ensure communication between the Scottish Government, NHS Boards, local authorities, voluntary sector and other relevant stakeholders concerned with maternal and infant nutrition.

5.2 At the first meeting of the group, terms of reference, the scope and key themes of the Framework were agreed. Key themes were based on those identified in the EU Blueprint[33] and these became the focus for three sub-groups. Although the EU Blueprint focused solely on breastfeeding, the group reached consensus that these themes; Education, Training and Practice Development, Communication and Engagement for Behaviour Change, and Research, Monitoring and Evaluation, were equally relevant to the broader issues of maternal nutrition, complementary feeding and nutrition for young children.

Formation of Sub-Groups

5.3 Members of the Maternal and Infant Nutrition Strategy group were invited to join one of the three sub-groups. Additional invitations were extended to a range of voluntary organisations and practitioner networks to enable greater inclusion and participation. The Infant Nutrition Co-ordinator attended each sub-group meeting to ensure continuity and avoid duplication. Membership of each sub-group is listed in Appendix 2.

Education, Training and Practice Development sub-group – Terms of Reference:

- Identify the target workforce;
- Scope whether maternal and infant nutrition is included in preparation programmes,[(6)] post graduate programmes or CPD programmes currently available;

[(6)] The sub-group defined preparation programmes as any programme of study (e.g. diploma or degree level) that practitioners are required to undertake to become qualified in their chosen profession

- Identify gaps in training provision and make appropriate recommendations to address these

5.4 The sub-group identified key groups of staff as follows, although the list is illustrative not exhaustive:

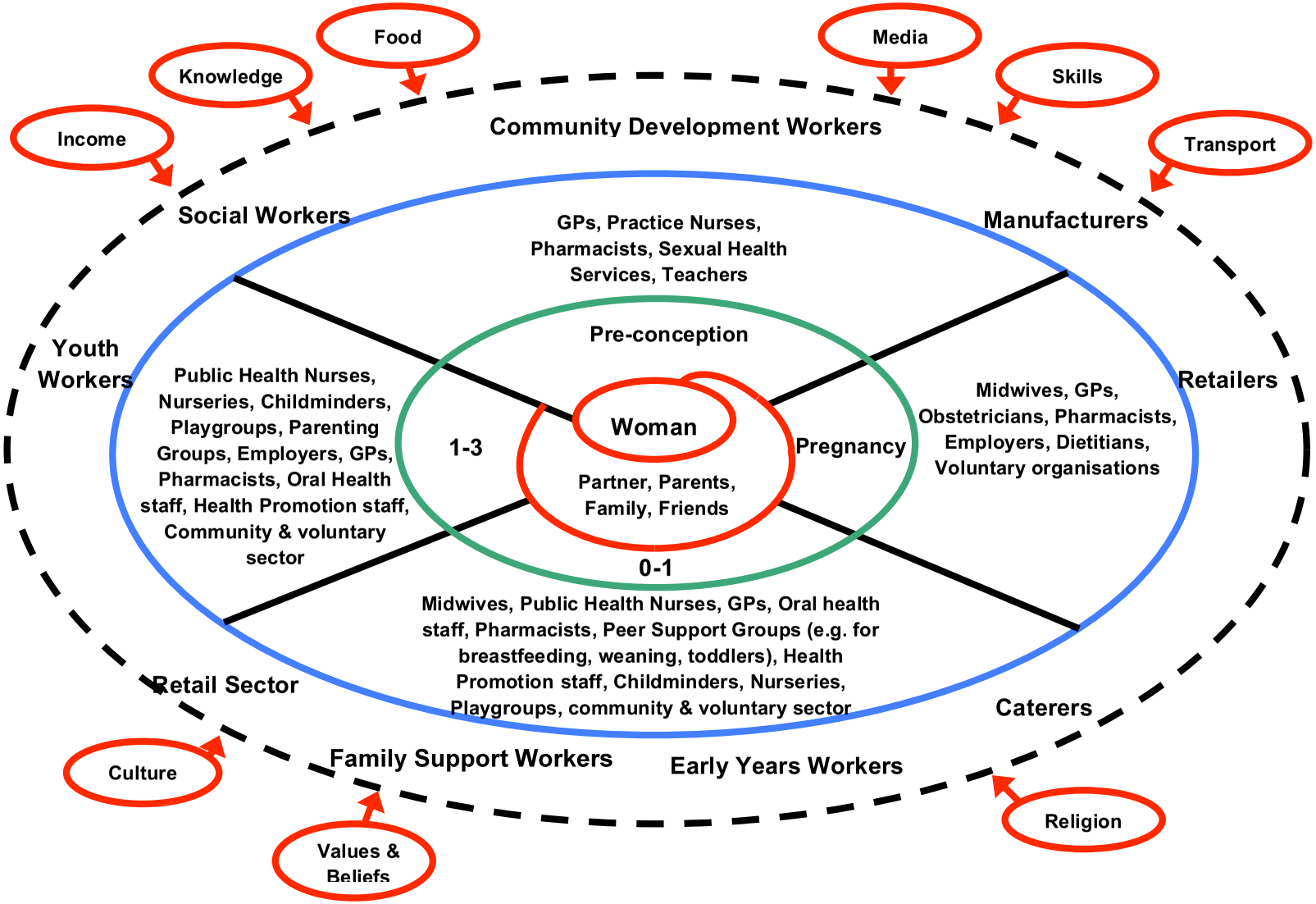
- NHS: midwifery teams, public health nursing teams including nursery nurses, GPs and practice staff, paediatricians, obstetricians, dietitians, nutritionists, oral health staff including dentists, oral health educators, dental hygienists, dental nurses, dental health support workers, health promotion staff, pharmacists, learning disability teams, mental health teams, addiction services teams, sexual health staff.
- Local authority: social services staff, social care staff, early years workers, teachers, family support workers, community learning & development teams.
- Community and voluntary sector staff: community food initiative workers and volunteers, healthy living centre staff, charity/voluntary organisation staff and volunteers e.g. National Childbirth Trust, Breastfeeding Network, La Leche League.
- Others: Childminders, private and partnership nursery staff, prison staff , foster carers

5.5 There are groups of staff whose role requires in-depth knowledge of, and expertise in, maternal and infant nutrition such as midwives, public health nurses and GPs. Other staff, however, such as early years staff and family support workers are expected to have a basic awareness and understanding of the importance of maternal and infant nutrition, and be able to signpost parents and carers to appropriate sources of support. It is important that all staff and volunteers, across all organisations, have the appropriate level of education and training required for their scope of practice.

Communication and Engagement for Behaviour Change sub-group – Terms of Reference:

- Identify the key target audiences that need to be reached through the Framework;
- Identify current communications activity in progress across Scotland to improve maternal and infant nutrition;
- Recommend specific actions for delivering and supporting the uptake of key messages that will contribute to achieving the communications outcomes of the Framework.

5.6 Enabling and supporting parents, particularly mothers, to change their behaviour through improving their knowledge, motivation and skills, is a key aim of this Framework. The diagram overleaf highlights the complexity of supporting behaviour change due to the various factors, people and organisations that influence women prior to conception, during pregnancy and in the earliest years of their child's life. One of our biggest challenges is reaching those who may not normally access services and they are likely to be those that will benefit most from additional support. Building supportive relationships and tailoring services to meet the needs of those in our target audiences is central to how we communicate engage with women and their families.


Food
Media
Knowledge
Skills
Income
Transport
Community Development Workers
Social Workers
Manufacturers
GPs, Practice Nurses, Pharmacists, Sexual Health Services, Teachers
Pre-conception
Youth Workers
Public Health Nurses, Nurseries, Childminders, Playgroups, Parenting Groups, Employers, GPs, Pharmacists, Oral Health staff, Health Promotion staff, Community & voluntary sector
Retailers
Midwives, GPs, Obstetricians, Pharmacists, Employers, Dietitians, Voluntary organisations
1-3
Woman
Pregnancy
Partner, Parents, Family, Friends
0-1
Midwives, Public Health Nurses, GPs, Oral health staff, Pharmacists, Peer Support Groups (e.g. for breastfeeding, weaning, toddlers), Health Promotion staff, Childminders, Nurseries, Playgroups, community & voluntary sector
Retail Sector
Caterers
Culture
Family Support Workers
Early Years Workers
Religion
Values & Beliefs

Research, Monitoring and Evaluation sub-group – Terms of Reference

- Identify current sources of information to assess and monitor maternal and infant nutrition in Scotland;
- Identify potential indicators to assess the outcomes of the Maternal and Infant Nutrition Framework;
- Recommend future research required to improve our understanding of maternal and infant nutrition in Scotland.

Development of the Maternal and Infant Nutrition Logic Model

5.7 The Strategy group agreed that development of a logic model would provide a useful tool to identify key outcomes for improving maternal and infant nutrition and specify the activities that should be undertaken to achieve them. The aim of developing the Framework in this way was to make it more systematic, explicit and targeted. Outcomes frameworks are currently being created for other Scottish Government priority areas including alcohol, physical activity, tobacco, food and healthy weight and mental health. The approach used to describe the development of the maternal and infant nutrition logic model is based on that used in the 'Outcomes framework for Scotland's mental health improvement strategy' (2010).[73]

What is a Logic Model?

5.8 A logic model is a visual and systematic way of presenting how it is believed a programme will work and describes the sequence of activities thought to bring about change and how these activities are linked to the results the programme is expected to achieve. Logic models also map out the time sequence in which the outcomes need to be achieved. Most of the value in a logic model is in the process of creating, validating and modifying the model. The Kellogg Foundation states "*The clarity of thinking that occurs from building the model is critical to the overall success of the programme*."[74]

Evidence Underpinning the Activities

5.9 The logic models help us to understand two broad questions. The first can be loosely categorised as the "whats" and incorporate issues such as the identification of the determinants of maternal and infant nutrition. Evidence of association and causation are normally the key evidence types here. The second set of questions can be loosely categorised as the "hows" and help us to identify areas for effective intervention or action.

5.10 Evidence from NICE Public Health Guidance 11 'Improving the nutrition of pregnant and breastfeeding mothers in children in low-income households' (2008)[75] and the Scottish Perspective on NICE Public Health Guidance 11 (2009)[76] has been used to inform the development of the Framework's activities. Full details about this process is presented in the supplementary document 'Rationale supporting the Maternal and Infant Nutrition Action Plan' accompanying this Framework.

5.11 The information drawn on can be described as highly-processed evidence. Additional sources of evidence and theory have been drawn from relevant Scottish

Government and WHO publications. It should be noted that NICE have formalised, robust and centrally quality-assured processes for the conduct of systematic reviews and generation of evidence-informed recommendations; however, as NICE guidance has no formal status in Scotland Scottish Perspectives are produced as appropriate.

Plausible Theory

5.12 Evidence of effectiveness underpins the maternal and infant nutrition logic model where it is available but it is not a limiting factor. However, the lack of evidence of effectiveness does not necessarily mean ineffectiveness, it may "*be due to inadequate or inappropriate evaluation, failure of implementation, or simply lack of evaluation*."[77] Despite the lack of evidence in some areas, a pragmatic approach using practitioner opinion and experience was adopted, therefore, some activities are evidence-informed rather than evidence-based and took account of the ten ethical principles for health promotion, public health and health improvement proposed by Tannahill (2008)[77]: do good, do not harm, equity, respect, empowerment, sustainability, social responsibility, participation, openness and accountability. Where gaps in the evidence were identified these were included in the recommendations for future research.

Scope and Limitations of the Logic Model

5.13 The purpose of the logic model is to identify key outcomes for improving maternal and infant nutrition and outline which activities should be carried out to achieve them based on evidence or plausible theory. The logic model is not a causal pathway for improving maternal and infant nutrition and does not try to explain all of the interactions between activities and outcomes. The logic model does not depict the true complexity of improving maternal and infant nutrition; it only attempts to clarify some of the key paths to achieving the outcomes.

5.14 The logic model presents a snapshot of what is currently known and represents our best collective understanding of how to improve maternal and infant nutrition at this point in time. It will need to be regularly reviewed and refined to reflect changes in understanding of maternal and infant nutrition over time.

Generation of Short, Medium and Long Term Outcomes

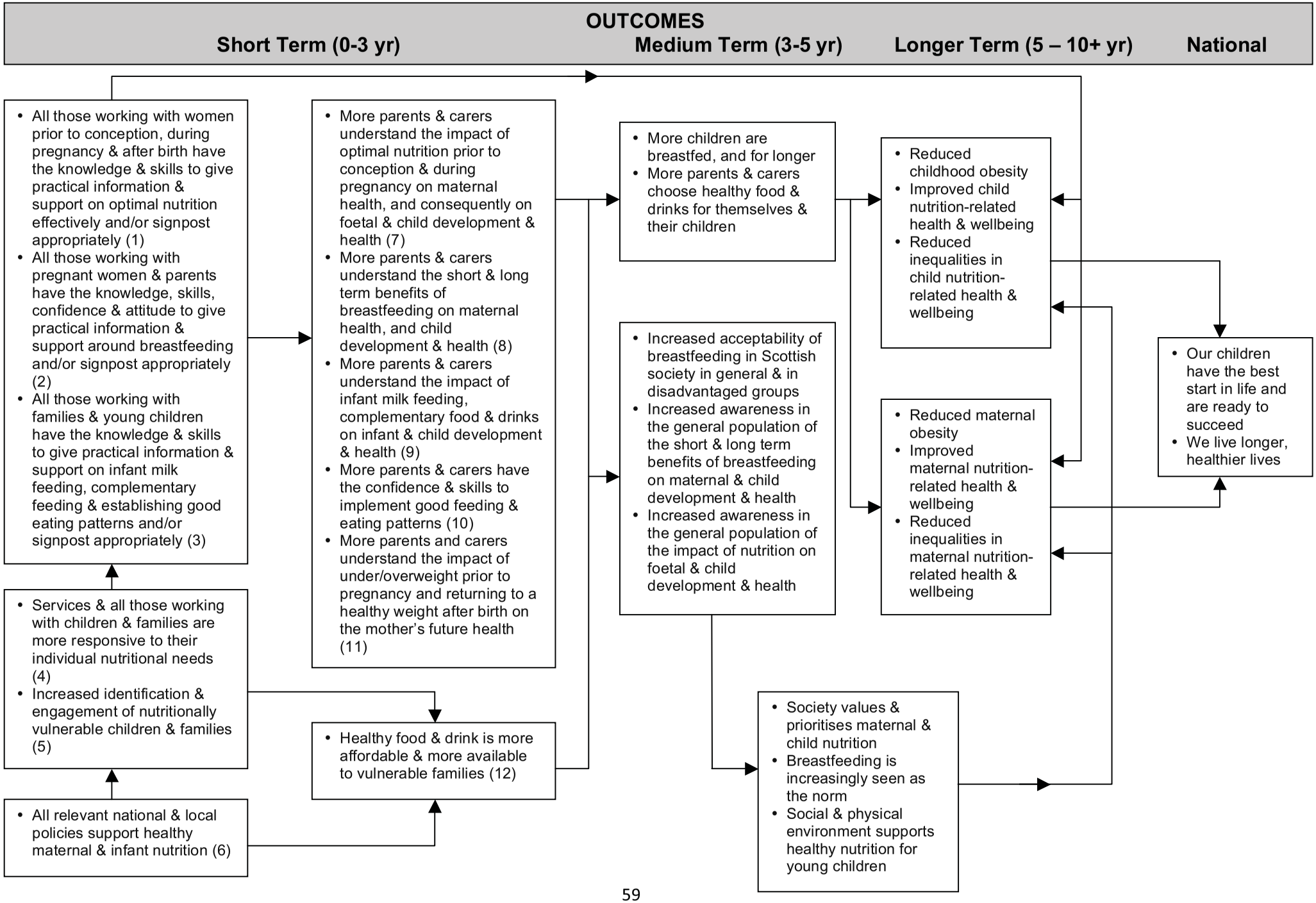
5.15 Over the course of two facilitated meetings, the group reached consensus on the short, medium and long term outcomes for improving maternal and infant nutrition. All of these contribute to the achievement of two national outcomes:

- Our children have the best start in life and are ready to succeed ;
- We live longer, healthier lives.

5.16 Following these consensus meetings, the sub-groups worked independently to further develop and refine the outcomes. Any suggested amendments to the wording of the outcomes proposed by a sub-group were agreed by the other sub-groups and approved by the Strategy group. This continuous refinement process took place over a period of 12-18 months. During this process various drafts of the outcomes framework were shared and discussed widely with key stakeholder

groups. By being explicit about the developmental process and the assumptions which have been made, it has led to the outcomes framework being more amenable to rational examination and, therefore, in the long term more robust.

5.17 All of the outcomes are presented overleaf. Several of the short term outcomes refer to “all those working with”, it is recognised that there is a range of staff and organisations who have a role in improving maternal and infant nutrition. Whilst the NHS plays a key role, local authorities, the community and voluntary sector are also crucial. Short term outcome (1) refers to “optimal nutrition” which in this context means the healthy eating advice for women prior to conception, during pregnancy and following birth, as detailed in Appendix 3.


OUTCOMES
Short Term (0-3 yr)
Medium Term (3-5 yr)
Longer Term (5 – 10+ yr)
National
All those working with women prior to conception, during pregnancy & after birth have the knowledge & skills to give practical information & support on optimal nutrition effectively and/or signpost appropriately (1)
All those working with pregnant women & parents have the knowledge, skills, confidence & attitude to give practical information & support around breastfeeding and/or signpost appropriately (2)
All those working with families & young children have the knowledge & skills to give practical information & support on infant milk feeding, complementary feeding & establishing good eating patterns and/or signpost appropriately (3)
Services & all those working with children & families are more responsive to their individual nutritional needs (4)
Increased identification & engagement of nutritionally vulnerable children & families (5)
All relevant national & local policies support healthy maternal & infant nutrition (6)
More parents & carers understand the impact of optimal nutrition prior to conception & during pregnancy on maternal health, and consequently on foetal & child development & health (7)
More parents & carers understand the short & long term benefits of breastfeeding on maternal health, and child development & health (8)
More parents & carers understand the impact of infant milk feeding, complementary food & drinks on infant & child development & health (9)
More parents & carers have the confidence & skills to implement good feeding & eating patterns (10)
More parents and carers understand the impact of under/overweight prior to pregnancy and returning to a healthy weight after birth on the mother's future health (11)
Healthy food & drink is more affordable & more available to vulnerable families (12)
More children are breastfed, and for longer
More parents & carers choose healthy food & drinks for themselves & their children
Increased acceptability of breastfeeding in Scottish society in general & in disadvantaged groups
Increased awareness in the general population of the short & long term benefits of breastfeeding on maternal & child development & health
Increased awareness in the general population of the impact of nutrition on foetal & child development & health
Society values & prioritises maternal & child nutrition
Breastfeeding is increasingly seen as the norm
Social & physical environment supports healthy nutrition for young children
Reduced childhood obesity
Improved child nutrition-related health & wellbeing
Reduced inequalities in child nutrition-related health & wellbeing
Reduced maternal obesity
Improved maternal nutrition-related health & wellbeing
Reduced inequalities in maternal nutrition-related health & wellbeing
Our children have the best start in life and are ready to succeed
We live longer, healthier lives

5.18 The outcomes identified in the logic model need to be considered alongside those in The Early Years National Logic Model and the 4 Equally Well Logic Models, along with the Health Promoting Health Service "Every Healthcare contact is a Health Improvement Opportunity"[78]

5.19 Addressing inequality is a key aim of Scottish Government policy. It is proposed that there are three ways of tackling health inequalities.[79]

1. Improving the health of the poor
2. Narrowing health gaps
3. Reducing health gradients

5.20 The logic model attempts to target the most disadvantaged by being specific about the population group whom activities are intended to reach, for example specific groups of women who are at risk of poor nutrition during pregnancy and those least likely to breastfeed. As far as possible the outcomes in the logic model are inequalities sensitive to attempt to reduce the gaps between groups. For example, if an outcome is to improve breastfeeding rates, it is focused on improving breastfeeding rates in all population groups. However if at the same time as improving rates overall, the gap in breastfeeding rates between groups is to be reduced, then as well as rates in the whole population improving, they need to improve faster in deprived communities. Since breastfeeding rates tend to be lower in deprived communities, investment will need to be heavily weighted towards interventions here.

5.21 Clearly, the achievement of the long term outcomes is dependent on other work and will not be achieved solely by the delivery of the Framework to improve maternal and infant nutrition, for example work underway to tackle overweight and obesity and work to improve the availability and affordability of healthy food and drink will have a significant impact on these outcomes.

Mapping of Evidence to the Identified Outcomes

5.22 While the refinement of the outcomes took place over several monthly meetings, a small group comprising each sub-group Chair, the Infant Nutrition Co-ordinator, plus others, considered the implications of NICE Public Health Guidance 11[75] for the Framework. This small group mapped the recommendations from NICE Guidance/Scottish Perspective to the short, medium and long term outcomes. The rationale for this process was that each recommendation made by NICE was underpinned by a robust and acceptable evidence base. Therefore, it was concluded, if the recommendations from NICE Guidance/Scottish Perspective were implemented in Scotland, progress towards the outcomes identified in the logic model could be achieved.

Generation of Activities to Achieve Outcomes

5.23 The Education, Training and Practice Development sub-group and the Communication and Engagement sub-group were asked to identify what activities would be required to achieve the short and medium term outcomes relevant to their sub-group theme.

5.24 The activities were compared to the NICE Guidance/Scottish Perspective recommendations to establish where there was concordance and where the suggested activities were at odds with these.

5.25 Three situations arose:

1. Consensus was reached between practitioner opinion and NICE/Scottish Perspective recommendations.
2. Practitioner opinion on a particular action or intervention was identified which was not included in the NICE Guidance/Scottish Perspective recommendations. In this case it was agreed that further searching of the evidence base could be done and/or evaluation of current practice or piloting of a particular activity which would contribute to gathering an evidence base.
3. If an activity/intervention recommended by NICE Guidance/Scottish Perspective was not identified by practitioners, they were asked to consider whether the activity should be included because it was plausible, practical or achievable.

5.26 The activities and the rationale underpinning each are presented in the supporting document to the Framework 'Rationale supporting the Maternal and Infant Nutrition Action Plan activities'. In addition, the activities are contained in the Action Plan on page 66.

Chapter 6: Research, Monitoring and Evaluation

6.1 The Framework endorses the research recommendations of NICE Public Health Guidance 11 which relates to pregnant women, those who are planning to become pregnant, mothers and other carers of children aged up to five years, and is particularly aimed at those on a low income or from a disadvantaged group. The NICE research recommendations can be found in Appendix 5.

6.2 In addition to the NICE recommendations, there are a number of areas of particular relevance to Scotland.

Research Commissioners and funders should fund research that seeks to identify:

- The attitudes, values and beliefs of women in Scotland to maternal and infant nutrition, before, during and after pregnancy in order to identify the drivers of change and barriers to change.

Practice evaluation should be carried out to identify the most effective ways to:

- Reduce social inequalities in the initiation and duration of breastfeeding, and exclusive breastfeeding;
- Improve infant feeding practices including timely and healthy complementary feeding;
- Improve maternal diet, particularly to increase fruit and vegetable and oily fish consumption, and reduce the risk of obesity;
- Increase uptake of vitamin D supplementation during pregnancy, while breastfeeding and in infants and young children;
- Increase uptake of folic acid supplementation prior to pregnancy and for the first 12 weeks of pregnancy.

Research commissioners, funders of large scale surveys, managers of large scale surveys and managers of routinely collected data should:

- Continue to use and improve routinely collected data (ISD Scotland data) and regular surveys carried out in Scotland e.g. Scottish Health Survey, Infant Feeding Survey, Growing up in Scotland study, to monitor progress of the Framework.

6.3 Particular attention should be paid to ensuring that the most relevant and helpful data is provided for monitoring purposes:

- Identify and address gaps where no data is available;
- Improve questions and questionnaires as appropriate;
- Make full use of existing surveys e.g. by boosting UK surveys (e.g. National Diet and Nutrition Survey and the new UK Diet and Nutrition Survey of Infant and Young Children) and carrying out secondary analysis (including data linking) of existing surveys to fill gaps in the evidence;

- Introduce new routinely collected data, new survey questions or new surveys where a need has been identified.

6.4 Particular gaps have been identified for Scotland relating to data on dietary intake during pregnancy and post pregnancy; maternal vitamin D, folate and iron status; maternal and infant obesity and weight gain, and infant nutrition during and post weaning.

Implementation

6.5 A national Implementation Group will be established to drive and co-ordinate implementation of the Framework and action plan. This Group will comprise of representatives from the lead organisations identified in the action plan and other key stakeholders as appropriate.

6.6 Strategic and operational leadership and organisational ownership are critical to the success of implementation of this Framework therefore each NHS Board and partner organisation should identify an Executive Director and appropriate senior member of staff who will have lead responsibility for implementation and development of a local delivery and results plan.

Results Chain

6.7 The action plan has identified several key areas of activity across a range of interventions, policy and practice areas. These activities seek to move from the current situation, as set out in chapter 4, to the outcomes the Framework aims to achieve to improve maternal and infant nutrition. High level milestones and timescales have been identified to enable monitoring of progress on implementation of the activities and, for many of these, there will be a need for the activity to continue beyond the timescale identified.

6.8 The Framework recognises each activity requires a number of key partners to take responsibility for contributing to these activities and not one agency is able to deliver these activities on their own. To enable partners to understand their progress towards achieving change, it is suggested each partner develops a results plan which sets out how their organisation intends to respond to the activities identified in the action plan. Specifically:

- What activities they will undertake;
- Who they expect to engage with when undertaking these activities and what response is expected;
- What changes they expect to see as a result of these activities.

Indicators

6.9 To enable us to recognise progress towards the changes we are expecting to see, potential indicators for each outcome have been identified and are presented in Appendix 6. Many of the indicators proposed are proxy indicators; they will not measure an outcome precisely. Furthermore, many of the indicators will need to be developed over time and therefore will need to be refined as work progresses. The

indicators have been drawn from a wide range of national and local data sources including existing data available for example from research, large scale surveys and practice evaluation identified above, project reports, performance reports, annual reviews, inspections and audits.

6.10 For several indicators a data source could not be identified, therefore, further discussion will be undertaken to prioritise the areas where data sources are needed, and to determine the resources required to develop a suitable data source.

6.11 Indicators are currently being developed for a number of other policy areas that will impact on maternal and infant nutrition outcomes; for example the 'Early Years Framework', the 'Refreshed Maternity Services Framework' and 'Preventing Overweight and Obesity in Scotland'. It is important to minimise the number of indicators, therefore, where relevant, the same indicators will be used across as many policy areas as possible.

Monitoring and Evaluation

6.12 Key partners, as identified in the Action Plan, will need to develop monitoring and evaluation frameworks to underpin their results plans. These frameworks link actions to the indicators and evidence which will help partners to check the progress of their efforts and the extent to which these efforts are achieving the results they have identified.

6.13 The frameworks will help partners to understand whether they are heading in the right direction towards achieving the changes they wish to see and/or whether they need to adjust or redirect their efforts. The frameworks will also help partners to describe their contribution to the overall actions of the Framework.

6.14 We recognise that it will take time for partners to think through what their results plans will look like and develop their monitoring and evaluation frameworks, especially as there are gaps in the evidence and/or information available to enable partners to have full picture of their progress and impacts. However, by taking this approach we anticipate partners will be able to articulate their contribution to the overall aims of the Framework. In addition, the Implementation Group will develop a national monitoring and evaluation structure, which will complement local evaluation frameworks.

Chapter 7: Action Plan

7.1 It is recognised that the activities contained in the Action Plan are at different stages – for several activities some progress has already begun and we will continue to build on the success achieved so far; while for others, work has not yet commenced, therefore, depending on the scale of the action required, it may take longer to achieve our milestones. For each activity we have identified which short term outcome we believe it will impact on. For each activity it is likely that a number of organisations will contribute to its delivery, however, we have identified the organisation(s) with lead responsibility for implementation.

1. Education, Training & Practice Development				
Activity	**Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
1.1 Preparation programmes for the defined workforce should include current, consistent, evidence-based education on maternal & infant nutrition which includes nutrition prior to conception, during & after pregnancy, appropriate nutritional supplementation, breastfeeding, infant formula feeding, complementary feeding & transition to family diet	1, 2, 3	Higher & Further Education Institutions	Maternal & infant nutrition included in preparation programmes for key health professions & early years workers	By end 2014/15
1.2 National occupational standards on maternal & infant nutrition will be developed.	1, 2, 3	Scottish Government	Standards developed	By end 2012/13
1.3 The defined workforce must accept responsibility for its CPD needs on maternal & infant nutrition relevant to their scope of practice and to enable them to do this training	1, 2, 3	Individual practitioners NHS Boards	Training opportunities for relevant staff available in each	By end 2011/12

opportunities will be developed building on existing provision. Individuals who have a nationally recognised standard of expertise and skill in maternal & infant nutrition will deliver such training, with appropriate governance arrangement in place to support them.		Local Authorities	NHS Board area (such training will be made available to staff in other local organisations, e.g. local authorities) Appropriately qualified staff available in each NHS Board area	
1.4 A national training resource on maternal & infant nutrition, to include behaviour change models, which can be adapted according to scope of practice, and used for local CPD will be developed.	1, 2, 3, 4	NHS Health Scotland NHS Education for Scotland	Training resource developed	By end 2011/12
1.5 Healthcare, education & social care managers must promote positive attitudes and challenge negative attitudes towards maternal & infant nutrition. This can be done using a range of methods e.g. health behaviour change and skills & attitudes training.	1, 2, 3, 4	NHS Boards Local Authorities	Health behaviour change & skills and attitudes training available in each local area	By end 2011/12
1.6 Training opportunities will be available to enable the defined workforce to engage more effectively with disadvantaged groups. The NES health inequalities learning resource 'Bridging the Gap' should be used for such CPD	1, 2, 3, 4	NHS Boards NHS Education for Scotland Higher & Further Education	Training opportunities on engaging with disadvantaged groups available	By end 2012/13

training and be integrated into under & post graduate education programmes.		Institutions	in each local area Principles of 'Bridging the Gap' integrated into relevant education programmes	By end 2014/15
1.7 Staff responsible for weighing and measuring infants & young children will be trained in the use and interpretation of the new WHO growth charts and be competent to engage with parents and support them to manage issues such as growth faltering and obesity.	2, 3, 4, 5	NHS Boards	All relevant staff trained to use & interpret new growth charts	By end 2010/11
1.8 Sexual health and reproductive education for sexual health staff and other health professionals should include the importance of nutrition on reproductive health	1	Higher Education Institutions	Nutrition included in sexual health & reproductive education	By end 2011/12
1.9 Maternal history taking, as outlined NHS QIS Best Practice Statement on maternal history taking (2008) and Scottish Woman-Held Maternity Record (SWHMR, 2008) will include a basic diet history including nutritional supplementation, BMI and, where appropriate, onward referral to specialist services (e.g. obstetrics, dietetics etc)	1, 4, 5, 6	NHS QIS	NHS QIS Best Practice Statement updated	By end 2011/12
1.10 Nutrition prior to pregnancy, during pregnancy and infant feeding will be included in Curriculum for Excellence and resources	7-11	Learning & Teaching Scotland	Maternal & infant nutrition included	By end 2011/12

identified/developed for teachers		NHS Health Scotland	in Curriculum for Excellence health & wellbeing experiences & outcomes Maternal & infant nutrition included in the assessment criteria for the health & wellbeing experience & outcomes Development of a resource to support delivery of the relevant experiences & outcomes	By end 2011/2012 By end 2012/13

2. Baby Friendly Initiative				
Activity	**Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
2.1 All maternity units will achieve and maintain UNICEF Baby Friendly accreditation as a minimum standard	2, 8	NHS Boards	80% maternity units with BFI accreditation 100% maternity units with BFI accreditation	By end 2013/14 By end 2015/16
2.2 All Community Health Partnerships will achieve and maintain UNICEF Baby Friendly accreditation as a minimum standard. Measures which will lead to an increased uptake of Baby Friendly accreditation by GP practices will be explored.	2, 8	NHS Boards	50% CHPs with BFI accreditation 80% CHPs with BFI accreditation	By end 2013/14 By end 2015/16
2.3 All universities providing midwifery and public health nursing programmes should raise awareness of UNICEF Baby Friendly accreditation for their courses.	2, 8	Higher Education Institutions	50% midwifery & public health nursing programmes with BFI accreditation	By end 2015/16

3. Policy Support				
Activity	**Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
3.1 All policymakers will ensure that new/refreshed national/local policies take account of the activities in the Maternal & Infant Nutrition Action Plan where relevant.	6	Scottish Government NHS Boards Local Authorities	Maternal & infant nutrition included in relevant policies	Ongoing
3.2 Increase the awareness of the WHO International Code on Marketing of Breast milk Substitutes and adopt the principles of the Code in all public sector organisations. Continue to influence decisions on legislation relating to manufactured baby & toddler foods to ensure it is fully implemented and enforced.	2, 3, 8, 9, 10	Scottish Government NHS Boards Food Standards Agency Scotland	Principles of WHO Code adopted by all public sector organisations	By end 2011/12
3.3 Work with NHS Boards to strengthen existing methods to meet with infant formula and baby food manufacturers to review and assess the suitability of their proposed product information for use in Scotland, in line with the principles of the WHO Code	2, 3	Scottish Government NHS Boards		By end 2010/11
3.4 Work with food retailers in Scotland to provide and promote affordable healthy food choices for children., pregnant and breastfeeding women	12	Scottish Government Food Standards Agency Scotland	To be determined as part of Obesity Route Map and Food & Drink Policy	

3.5 Work with private sector companies to encourage them to include healthy eating considerations for children in all aspects of their work, for example in the products they produce, in the sponsorship they provide, in their product marketing etc.	9, 10	Scottish Government Food Standards Agency Scotland	To be determined as part of Obesity Route Map and Food & Drink Policy	

4. Communicating with our audiences				
Activity	**Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
4.1 A positive media strategy with consistent lines and messages designed to combat myths and misinformation about maternal and infant nutrition will be developed. Appropriate mechanisms and communication channels will be developed to support and enable health professionals to interpret and respond to reports on maternal & infant nutrition appropriately.	7-11	Scottish Government	Media strategy & communication channels developed	By end 2011/12
4.2 Agree and distribute maternal and infant nutrition publications and resources which should be given out universally as per NHS Health Scotland Early Years Information Pathway. These publications and resources should be assessed and updated to ensure accessibility.	7-11	NHS Health Scotland NHS Boards	Publications assessed and updated	By end 2011/12

5. Practical support for parents & carers				
Activity	**Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
5.1 Antenatal education will be made available to all women and their significant others (such as their partner, mother/mother-in-law) proportionate to need and include accessible, relevant, non-judgemental practical support and information on maternal and infant nutrition. This may include parent education classes, infant feeding workshops, nutrition resources in a variety of formats and signposting to locally provided practical food skills sessions. In order to reach all women, services will need to be designed so that they are inclusive and responsive to those with additional needs who do not normally access services e.g. young parents, parents with learning difficulties, parents from minority ethnic groups and those living in areas of social deprivation.	7-11	NHS Boards NHS Health Scotland NHS Education Scotland NHS QIS	Maternal & infant nutrition included in all aspects of antenatal education. Antenatal education in each Board reviewed and redesigned, where necessary, to reach those with additional needs	By end 2011/12
5.2 Structured support proportionate to need will be provided for breastfeeding mothers postnatally, including: • Support from health professionals and relevant organisations e.g. Breastfeeding Network, National Childbirth Trust, La Leche League, Association of	8, 10	NHS Boards Voluntary sector	Information on local support given to all breastfeeding mothers on hospital discharge, to include local	By end 2010/11

Breastfeeding Mothers • Access to breastfeeding support groups and relevant organisations • Access to the National Breastfeeding Helpline • Access to peer /mother-to-mother breastfeeding support programmes As with antenatal support, postnatal support services will need to be designed so that they are responsive and inclusive to those with additional needs who are least likely to breastfeed or only breastfeed for a short time, such as young mothers, mothers with poorer educational attainment and those living in areas of social deprivation where breastfeeding rates are low.			voluntary organisations, Helpline number, peer support programmes Postnatal support for breastfeeding mothers in each area reviewed and redesigned, where necessary, to reach those with additional needs	By end 2011/12
5.3 Accredited breastfeeding peer support programmes will be provided in all NHS Board areas. These should be modelled on a nationally agreed framework and be supervised by an appropriately trained and experienced practitioner. Peer support will be offered to women before and after birth alongside other ante and postnatal support, and will be considered as core part of activity to support breastfeeding.	8, 10	NHS Boards Voluntary sector	National framework for breastfeeding peer support programmes developed Peer support programme available in each Board area, targeted to areas	By end 2011/12 By end 2012/13

			with low breastfeeding rates	
5.4 Postnatal information and support will be provided to parents who have made a fully informed decision to formula feed, to minimise the risks associated with formula feeding. Information and practical support will include how to make up a feed correctly, how to use prepared feeds safely, how to sterilise equipment, appropriate positioning of the baby while feeding and the different types of infant formula.	9, 10	NHS Boards	NHS Health Scotland 'Bottle feeding' resource published Practical support provided to all parents who decide to formula feed before hospital discharge	By end 2010 With immediate effect
5.5 In partnership with the community and voluntary sector explore opportunities to extend existing services aimed at parents e.g. parenting education include key age-appropriate healthy eating and oral health messages, and practical budgeting, shopping, cooking etc skills and support.	9, 10	NHS Boards Local Authorities Community and voluntary sector	Practical information and/or support for healthy eating included in existing parenting groups where possible	By end 2011/12
5.6 Encourage and enable community food workers/healthy living networks/centres to continue to deliver practical weaning sessions/healthy eating for families, including healthy eating and oral health messages, and practical budgeting, shopping etc skills and support. Map and signpost local community	4, 9, 10, 12	NHS Boards Local Authorities Community and voluntary sector	Local community food initiatives are supported to continue to deliver existing programmes	Ongoing By end

food initiatives e.g. food co-ops, weaning sessions, so that this information can be shared widely with various target groups.			Local directory of community food initiatives developed in every area (where one does not already exist)	2010/11
5.7 Widely promote the Healthy Start Scheme including how to use the vouchers, what can be bought with them, encouraging uptake of vitamin supplements and local community initiatives providing practical food skills support that beneficiaries can access.	7- 10, 12	Scottish Government NHS Boards Local Authorities Community and voluntary sector	Local action plans for increasing uptake of Healthy Start in place (as part of implementation of CEL 36 (2008)	By end 2011/12

6. Supportive Environments				
Activity	**Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
6.1 Encourage local development of Breastfeeding Welcome schemes to include private and public sector organisations.	10	Local Government NHS Boards		By end 2011/12
6.2 Work with employers to support parents with young children in relation to nutrition e.g. providing information on the introduction of complementary feeding, healthy eating for	7-11	NHS Health Scotland (Healthy Working Lives)	Relevant criteria included in the refreshed Healthy Working Lives	By end 2012/13

toddlers, providing facilities for breastfeeding mothers when returning to work.			Award	
6.3 All childcare providers (including childminders) who provide food, must provide appropriate healthy food and drinks for babies beyond the age of six months and young children. There is a range of guidance that can be used: 'Adventures in Foodland' (2004), 'Nutritional Guidance for Early Years' (2006) and 'Fun First Foods' (2010).	9, 10, 12	Scottish Government	Agree responsibilities of the new Social care & Social Work Improvement Scotland	By end 2011/12

7. Research, Monitoring & Evaluation (also see section on page 55)				
Activity	**Indicator for Outcome**	**Lead Organisation(s)**	**Milestone**	**Timescale**
7.1 Review the routinely collected data on breastfeeding on the ISD Scotland SMR02 Maternity Inpatient and Day Case Record and compare with the data on the CHSP-Pre-school system. Assess and review potential duplication in recording of breastfeeding information at birth and on discharge from hospital and provide further advice following this review.	13, 22, 23	ISD Scotland	Investigate completeness and accuracy of infant feeding data sources and recommend which data is most appropriate for monitoring purposes	By end 2011/12
7.2 Consider the feasibility of introducing a weight check as part of the 12 -13 month immunisation visit. This measurement should be plotted on the child's WHO Growth Chart and recorded in the Personal Child Health Record (Red Book) and entered on the Child Health Surveillance Programme – Pre-school system for statistical monitoring purposes. Where there are concerns about a child's growth and/or weight, or where the weight		NHS Boards	To be agreed following Hall 4 consultation events	

centile is above the 99.6th, length should also be measured and appropriate advice should be given or a referral for further investigation made.				
7.3 As part of the proposed reintroduction of a 24-30 month review into the universal child health surveillance programme,[80] the issue of healthy growth patterns and weight should be discussed/raised with parents and/or carers. If there is concern about the child's pattern of growth or weight (either under or overweight), arrangements should be made for the child to be weighed and measured by the Public Health Nurse and their BMI calculated (using UK-WHO centile look up). This measurement should be plotted on the child's WHO Growth Chart and recorded in the Personal Child Health Record (Red Book). Height and weight should also be recorded on the Child Health Surveillance Programme – Pre-school system for statistical monitoring purposes. Where there are concerns about a child's growth and/or weight, appropriate healthy eating advice should be given or a referral for further investigation made.	21, 22, 23		To be agreed as part of Hall 4 consultation events	
7.4 Explore the feasibility and potential effectiveness of a health check and intervention for postnatal mothers e.g. between 6-12 months, to provide an opportunity to improve maternal nutritional status. This feasibility study should take into consideration: • The effectiveness (including cost effectiveness) of such an intervention	24, 25, 26	Scottish Government	Working group established to determine feasibility of health check and intervention for postnatal mothers	By end 2010/11

aiming to improve maternal nutrition and prevent later ill health such as obesity, diabetes, osteoporosis • The timing of a postnatal health check and intervention, taking into account current practice, provision and resources • An intervention to improve iron, vitamin D and calcium status • The recommendations from the forthcoming NICE public health guidance on weight management in pregnancy and after childbirth.				

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Appendix 1: Membership of Maternal and Infant Nutrition Strategy Group (MINSG)

Dr Lesley Wilkie (Chair)	Director of Public Health & Planning, NHS Grampian
Dr Julie Armstrong	Senior Lecturer in Public Health Nutrition, Glasgow Caledonian University
Cathy Cairns	Associate Nurse Director, NHS Fife (representing Scottish Executive Nurse Directors) from September 2009
Ruth Campbell	Infant Nutrition Co-ordinator, Child & Maternal Health Division, Scottish Government
Kathryn Chisholm	Policy Officer, Early Education & Childcare, Scottish Government (until March 2010)
Fiona Dagge-Bell	Clinical Development & Improvement Team Leader, Women's, Children's & Specialist Services, NHS Quality Improvement Scotland
Kirsty Darwent	Breastfeeding Supporter & Tutor, The Breastfeeding Network
Janet Dalzell	Breastfeeding Co-ordinator, NHS Tayside (representing Scottish Infant Feeding Advisers Network)
Dr Diana Flynn	Consultant Paediatrician, NHS Glasgow & Clyde (representing Royal College of Paediatrics and Child Health)
Bill Gray	Community Food and Health (Scotland)
Dr Cathy Higginson	Programme Manager: Food & Health, NHS Health Scotland (also representing NHS Public Health Nutrition Group) until January 2010
Jason Lloyd	Policy Officer, Early Years & Childcare, Scottish Government (from March 2010)
Ali Macdonald	Health Improvement Manager for Early Years, Children & Families, NHS Health Scotland (from March 2010)
Dr Morag Martindale	General Practitioner, NHS Tayside (representing Royal College of General Practitioners)
Dr Deirdre McCormick	Nursing Officer – Children, Vulnerable Families & Early Years, CNO Directorate, Scottish Government (from March 2010)
Theresa McElhone	UNICEF Baby Friendly Initiative Professional Officer for Scotland
Karen McFadden	Senior Nurse, South West Glasgow CHCP (representing Local Authorities)
Dr Rhona McInnes	Senior Lecturer, University of Stirling (until September 2009)
Linda Miller	Policy Officer, Health Improvement Strategy Division, Scottish Government (until December 2009)
Anne Milne	Diet & Nutrition Advisor, Food Standards Agency Scotland
Maria Reid	Health Improvement Lead, South Lanarkshire CHP, NHS Lanarkshire (representing Scottish Health Promotion Managers Group)

Sylvia Shearer	Policy Analyst/Branch Head, Maternal & Infant Health, Scottish Government (from March 2010)
Susan Stewart	Associate Director of Nursing & Midwifery, NHS Lanarkshire (representing Royal College of Midwives Lead Midwives Group)
Monica Thompson	Programme Director, NHS Education for Scotland
Marjory Thomson	Professional Adviser – Nutrition, Scottish Commission for the Regulation of Care
Mike Watson	Branch Head, Maternal & Infant Health, Scottish Government (until December 2009)
Dr Kate Woodman	Public Health Adviser, NHS Health Scotland (from March 2010)
Helen Yewdall	Public Health Practitioner, NHS Lothian (representing Community Practitioners & Health Visitors Association)

Appendix 2: Membership of sub-groups

Education, training and practice development sub-group

Monica Thompson (Chair)	Programme Director, NHS Education for Scotland
Ruth Campbell	Infant Nutrition Co-ordinator, Child & Maternal Health Division, Scottish Government
Kathryn Chisholm	Policy Officer, Early Education & Childcare, Scottish Government
Jane Crawford	Scottish Childminding Association
Fiona Dagge-Bell	Clinical Development & Improvement Team Leader, Women's, Children's & Specialist Services, NHS Quality Improvement Scotland
Kirsty Darwent	Breastfeeding Supporter & Tutor, The Breastfeeding Network
David Elder	Learning & Development Adviser, NHS Health Scotland
Liz Martin	Learning & Development Adviser, NHS Health Scotland
Dr Morag Martindale	General Practitioner, NHS Tayside (representing Royal College of General Practitioners)
Lesley McCranor	Manager, Healthy Valleys Healthy Living Initiative (representing community & voluntary sector)
Theresa McElhone	UNICEF Baby Friendly Initiative Professional Officer for Scotland
Karen McFadden	Senior Nurse, South West Glasgow CHCP (representing Local Authorities)
Joanne McNish	Food & Health Adviser, Learning & Teaching Scotland
Iolanda Serci	Lecturer, Robert Gordon University
Helen Summers	Health Improvement Lead – Food & Health, NHS Borders (representing NHS Public Health Nutrition Group)
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Appendix 3: Healthy eating advice for women prior to and during pregnancy and while breastfeeding

Women are advised to comply with general healthy eating advice before and during pregnancy and while breastfeeding. In addition to eating a balanced diet there are specific recommendations on vitamin supplements during these periods. The Food Standards Agency Eat Well website provides advice on healthy eating and vitamin supplementation for women who are planning a pregnancy, those who are pregnant and those who are breastfeeding www.eatwell.gov.uk

During each of these periods women are advised to eat a variety of foods including:

- plenty of fruit and vegetables (fresh, frozen, tinned, dried or a glass of juice); aiming for five portions a day
- plenty of starchy foods such as bread, pasta, rice and potatoes; choosing wholegrain options
- protein such as lean meat and chicken, fish, eggs and pulses (peas, beans and lentils)
- at least two portions of fish each week including one of oily fish. No more than two portions of oily fish each week, this includes fresh tuna, mackerel, sardines and trout
- dairy foods such as milk, cheese and yogurt, which all provide calcium
- small amounts of foods and drinks high in fat and/or sugar.

In addition to the advice above, prior to pregnancy women are advised to:

- increase their intake of foods rich in folate and to take a supplement containing 400 micrograms of folic acid each day, for at least three months prior to conception or from the time that contraception is stopped until the 12th week of pregnancy. Women who have (or their partner has) a neural tube defect, those who have previously had a baby with a neural tube defect, those who have diabetes, epilepsy or coeliac disease are advised to take a supplement containing five milligrams of folic acid each day.
- Avoid taking dietary supplements containing vitamin A or fish liver oils
- limit their intake of tuna, and avoid shark, marlin and swordfish
- avoid alcohol, but if they choose to have a drink, they should not drink more than one to two units of alcohol once or twice a week and should not get drunk.

In addition to advice before pregnancy, during pregnancy women are advised to:

- increase their intake of foods rich in folate and to take a supplement containing 400 micrograms of folic acid each day until the 12th week of pregnancy. Women who have (or their partner has) a neural tube defect, those who have previously had a baby with a neural tube defect, those who have diabetes, epilepsy or coeliac disease, or a BMI above 30 are advised to take a supplement containing five milligrams of folic acid each day.
- take a daily supplement containing ten micrograms of vitamin D throughout pregnancy.

- avoid pate, certain types of cheese, raw or partially cooked eggs, raw shellfish, raw and uncooked meat.
- limit their caffeine intake to less than 200 micrograms each day which is equivalent to two mugs of instant coffee, two mugs of tea or five cans of cola.
- avoid alcohol completely.

In addition to advice on general healthy eating, breastfeeding women are advised to:

- take a daily supplement containing ten micrograms of vitamin D for as long as they are breastfeeding.

Appendix 4: NICE Public Health Guidance 11 Research Recommendations

NICE recommends research commissioners and funders should:

1. Commission research into effective ways of improving the nutritional status of pre-conceptual women, pregnant and breastfeeding women and young children. This should identify effective ways of engaging with women both before and during pregnancy. It should pay particular attention to: teenage parents, low-income families and families from minority ethnic or disadvantaged groups; promoting oily fish, vegetable and fruit consumption; helping women who may become pregnant, particularly those who are obese, to achieve a healthy body weight prior to pregnancy; and promoting uptake of folic acid supplements prior to conception and the uptake of vitamin D supplements during pregnancy and while breastfeeding.

2. Commission research into how best to encourage and support women to breastfeed exclusively during the first 6 months and how to ensure all women breastfeed for longer.

3. Commission research on interventions which reduce the incidence of food allergy among infants and young children, particularly when introducing solid foods.

4. Commission research into the acceptability of dietary and lifestyle interventions to improve the vitamin D status of mothers and children aged up to five years, particularly those from vulnerable groups. This should also assess the relative contribution made by exposing the skin to ultra-violet light and dietary supplements.

5. Commission research into the prevention of early dental caries among children aged up to five years, especially those from vulnerable groups. This should focus on children's drinks and snacks.

6. Research councils, national and local research commissioners and funders, research workers and journal editors should include as standard in nutritional research and policy evaluation reports: a clear, detailed description of what was delivered, over what period, to whom in what setting; the costs of delivering the intervention; measurable and clearly defined health outcomes; an estimation of the sample size required to demonstrate, with adequate statistical power, the impact on health; differences in access, recruitment and (where relevant data are available) uptake according to socioeconomic and cultural variables such as social class, education, gender, income or ethnicity; a description and rationale of the research methods and forms of interpretation used; embedded process evaluations that include recipient perspectives. Develop methods for synthesising and interpreting results across studies conducted in different localities, policy environments and population groups. Formulate rigorous and transparent methods for assessing external validity and for translating evidence into practice.

7. Policy makers, research commissioners and local services should collect baseline data before implementing local interventions or policy changes that may have an impact on health and ensure evaluation is part of the funding proposal. Work in partnership with health authorities, public health observatories or universities to evaluate local initiatives, but allow adequate time for the intervention to take effect. Monitoring and evaluation should always estimate the potential impact on maternal and child health among different social groups.

8. Policy makers, research funders and health economists should, as a priority, commission research on the cost-effectiveness of maternal and child nutrition interventions. This includes balancing the cost of primary prevention of nutrition-related ill health against the costs of detecting and treating disease (both short and long term).

9. Policy makers, research commissioners and local services should commission research into the impact of routine growth and weight monitoring on child health and parenting behaviour.

NICE have also produced an audit tool to support the implementation of NICE guidance. The aim is to help NHS organisations with a baseline assessment and to assist with the audit process, thereby helping to ensure that practice is in line with the NICE recommendations. The audit support is based on the key recommendations of the guidance and includes criteria and data collection tools. http://guidance.nice.org.uk/PH11/AuditSupport/doc/English

Appendix 5: Indicators for Short, Medium and Long term Outcomes

	Short term outcome	Potential Indicator	Data source
1	All those working with women prior to conception, during pregnancy & after birth have the knowledge & skills to give practical information & support on optimal nutrition effectively and/or signpost appropriately	Quality standards for education programmes are established Under graduate and postgraduate education programmes deliver on agreed learning outcomes to required quality standards in relation to maternal and infant nutrition National occupational standards for maternal and infant nutrition are established Training programmes deliver on agreed learning outcomes based on maternal and infant nutrition core standards % of relevant workforce who have completed training in maternal and infant nutrition	Undetermined, would need to be collected by each Higher & Further Education Institution
2	All those working with pregnant women & parents have the knowledge, skills, confidence & attitude to give practical information & support around breastfeeding and/or signpost appropriately	Quality standards for education programmes are established Under graduate and postgraduate education programmes deliver on agreed learning outcomes to required quality standards in relation to breastfeeding % of relevant staff who have completed 'Breastfeeding Management' course % maternity units with Baby Friendly accreditation % CHPs with Baby Friendly accreditation % Universities with Baby Friendly accreditation	Underdetermined Baby Friendly audits UNICEF Baby Friendly Initiative

3	All those working with families with young children have the knowledge & skills to give practical information & support on infant milk feeding, complementary feeding & establishing good eating patterns and/or signpost appropriately	Quality standards for education programmes are established Under graduate and postgraduate education programmes deliver on agreed learning outcomes to required quality standards in relation to maternal and infant nutrition National occupational standards for maternal and infant nutrition are established Training programmes deliver on agreed learning outcomes based on maternal and infant nutrition core standards % of relevant workforce who have completed training in maternal and infant nutrition	Undetermined, would need to be collected by each Higher & Further Education Institution Audit of training provision
4	Services and all those working with children and families are more responsive to individual nutritional needs of children and families	Inclusion of maternal and infant nutrition in Pathways for Maternity Care and GIRFEC pathways % of referred nutritionally vulnerable individuals accessing services Evidence that service development is influenced by feedback from vulnerable groups – link to quality outcome measure around patient experience, patient reported outcomes, patient experience of access	Local directory of support services for maternal and infant nutrition
5	Increased identification & engagement of nutritionally vulnerable families	% of eligible beneficiaries who register for Healthy Start % of Healthy Start beneficiaries that obtain women's vitamins	Department of Work & Pensions/SG

		% of Healthy Start beneficiaries that obtain children's vitamins Establish a core data set for maternal and infant nutrition to be included within the local Health Plan Indicator tool % of local Health Plan Indicator tools that incorporate the core data set for maternal and infant nutrition	Undetermined
6	All relevant national & local policies support healthy maternal & child nutrition	Existence of maternal and infant nutrition local delivery plans Inclusion of maternal and infant nutrition in other relevant local policies/strategies e.g. in Single Outcome Agreements, Children's Services Plans and/or Joint Health Improvements Plans Inclusion of maternal and infant nutrition in other relevant national policies	Audit of Board plans Audit of local joint plans Audit of national plans
7	Healthy food & drink is more affordable & more available to vulnerable families	Price rise of a healthy food basket is less or more than a standard or unhealthy food basket % of eligible retailers registered with Healthy Start % of eligible retailers registered with Healthy Start within the 15% most deprived datazones based on SIMD Other indicators could be developed via Obesity Route Map	FSA Scotland Healthy Start administrative data
8	More parents & carers understand the impact of optimal nutrition prior to	Maternal and infant nutrition is a core component of antenatal education which is based on principles of adult	Audit of antenatal education

	conception & during pregnancy on maternal health, and consequently on foetal & child development & health	learning % of parents/carers achieving learning outcomes % of parents/carers from the six equality groups and deprived communities accessing antenatal education Relevant resources are updated taking account of equality impact assessment findings % of female respondents aged 18 – 49 yrs taking folic acid supplements because they hope to become pregnant % of pregnant respondents who started taking folic acid supplements before becoming pregnant % of pregnant respondents who have taken folic acid supplements during the first 12 weeks of pregnancy % of women who took vitamin supplements during pregnancy	curriculum Monitoring of local service delivery Audit of resources Scottish Health Survey – Nurse interview Infant Feeding Survey
9	More parents and carers understand the short & long term benefits of breastfeeding on maternal health, & child development & health	% of women who meet the required Baby Friendly standard i.e. the % of women who able to identify the health benefits of breastfeeding	Baby Friendly audits
10	More parents & carers understand the impact of infant milk feeding, complementary food & drinks on infant & child development & health	% of parents/carers who prepare infant formula according to guidelines % of parents/carers who report accessing information on complementary feeding % of participants from the six equality groups and deprived communities accessing support for	Infant Feeding Survey Evaluation of weaning sessions

		complementary feeding Relevant resources are updated taking account of equality impact assessment findings % of infants weaned at around six months	 Audit of resources Infant Feeding Survey
11	More parents & carers have the confidence & skills to implement good feeding and eating patterns	% of parents/carers who prepare infant formula according to guidelines % of parents/carers who report they have increased confidence after accessing support for complementary feeding % of children who receive vitamin supplements Other indicators could be developed from the National Diet & Nutrition Survey (NDNS) of Infants & Young Children (to be published 2012)	Infant Feeding Survey Evaluation of local service Infant Feeding Survey NDNS of Infants & Young Children (2012)
12	More parents & carers understand the impact of under/overweight prior to pregnancy & returning to a healthy weight after birth on the mother's future health	% of women whose height and weight is recorded at booking to allow calculation of Body Mass Index % of women who report being given information on impact of weight on health Inclusion of an intervention within the Pathways for Maternity Care for women whose BMI is outwith the normal range	ISD Scotland data Undetermined Review of Pathways
	Medium Term Outcome	**Potential Indicator**	**Data Source**
13	More children are breastfed	% of infants breastfed at birth, 10 days, 6-8 weeks and 6	ISD Scotland

	and for longer	months	Infant Feeding Survey
14	More parents & carers choose healthy food & drinks for themselves & their children	% of infants who receive an “ideal” first food at weaning (fruits, vegetables, baby rice) % of eligible beneficiaries who register for Healthy Start % of respondents who have tried to eat more healthily in the last year to improve their health % of respondents who have maintained a healthier eating pattern in the last year % of women taking vitamin supplements while breastfeeding Other indicators could be developed from NDNS survey on infants and young children (to be published 2012)	Infant Feeding Survey Healthy Start Management Information Scottish Health Survey – Knowledge, attitudes and motivation module Undetermined NDNS survey on infants and young children (2012)

15	Increased acceptability of breastfeeding in Scottish society in general & in disadvantaged groups	% of women who have been stopped from or made to feel uncomfortable about breastfeeding in a public place % of respondents in the general population who tend to agree or strongly agree that women should only breastfed their babies at home or in private % of respondents in lower socioeconomic groups who tend to agree or strongly agree that women should only breastfed their babies at home or in private	Infant Feeding Survey Scottish Health Survey – Knowledge, attitudes and motivation module
16	Increased awareness in the general population of the short & long term benefits of breastfeeding on maternal & child development & health	% of respondents who are able to identify at least one health benefit of breastfeeding for infants % of respondents who are able to identify at least one health benefit of breastfeeding for mothers % of respondents who state that bottle fed babies are less healthy and less immune to infection than breast fed babies	Undetermined
17	Increased awareness in the general population of the impact of nutrition on foetal & child development & health	% of general population who identify folic acid supplementation as important for pregnant women % of general population who are able to identify the recommended daily intake of fruit and vegetables for children	Undetermined
	Medium/Long term Outcome	**Potential Indicator**	**Data Source**
18	society values & prioritises maternal & child nutrition	% household expenditure on fruit and vegetables % household expenditure on soft drinks	Family Food Survey

		% household expenditure on confectionery % of respondents in the general population who tend to agree or strongly agree that women should only breastfeed their babies at home or in private	Scottish Health Survey – Knowledge, attitudes and motivation module
19	breastfeeding is increasingly seen as the norm	% of respondents who if a close friend or relative was having a baby would encourage them to breastfeed	Undetermined
20	the social & physical environment supports healthy nutrition for young children	% of early years establishments assessed who provide fruit, milk and water daily % of early years establishments assessed who have a healthy eating policy	Care Commission inspections
	Long term Outcome	**Potential Indicator**	**Data Source**
21	reduced childhood obesity	% of children with a BMI on or above 85th centile and on or above 95th centile at the Primary 1 assessment	ISD Scotland
22	improved child nutrition-related health & wellbeing	% of infants breastfed at birth, 10 days, 6-8 weeks and 6 months % of infants weaned at around 6 months % of children with a BMI on or above 85th centile and on or above 95th centile at the Primary 1 assessment % of Primary 1 children with decayed, missing or filled teeth	ISD Scotland Infant Feeding Survey ISD Scotland Scottish Dental Inspection Programme

23	reduced inequalities in child nutrition-related health & wellbeing	Reduction in gap across all quintiles of rates of 21 & 22 above	As 21 & 22 above
24	reduced maternal obesity	% of overweight and obese women aged 16 – 44 yrs % of overweight and obesity in pregnant women at first booking appointment % overweight and obese women following birth (at a point in time yet to be determined)	Scottish Health Survey ISD Scotland Undetermined
25	improved maternal nutrition-related health & wellbeing	% of women taking folic acid supplements prior to and during pregnancy % of women taking vitamin D supplements during pregnancy and while breastfeeding % of pregnant women with a BMI < 18.5 at first booking appointment	Scottish Health Survey – Nurse interview Undetermined ISD Scotland
26	reduced inequalities in maternal nutrition-related health & wellbeing	Reduction in gap across all quintiles of rates of 24 & 25 above	As 24 & 25 above

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