Diet and Nutrition

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Executive summary

Introduction

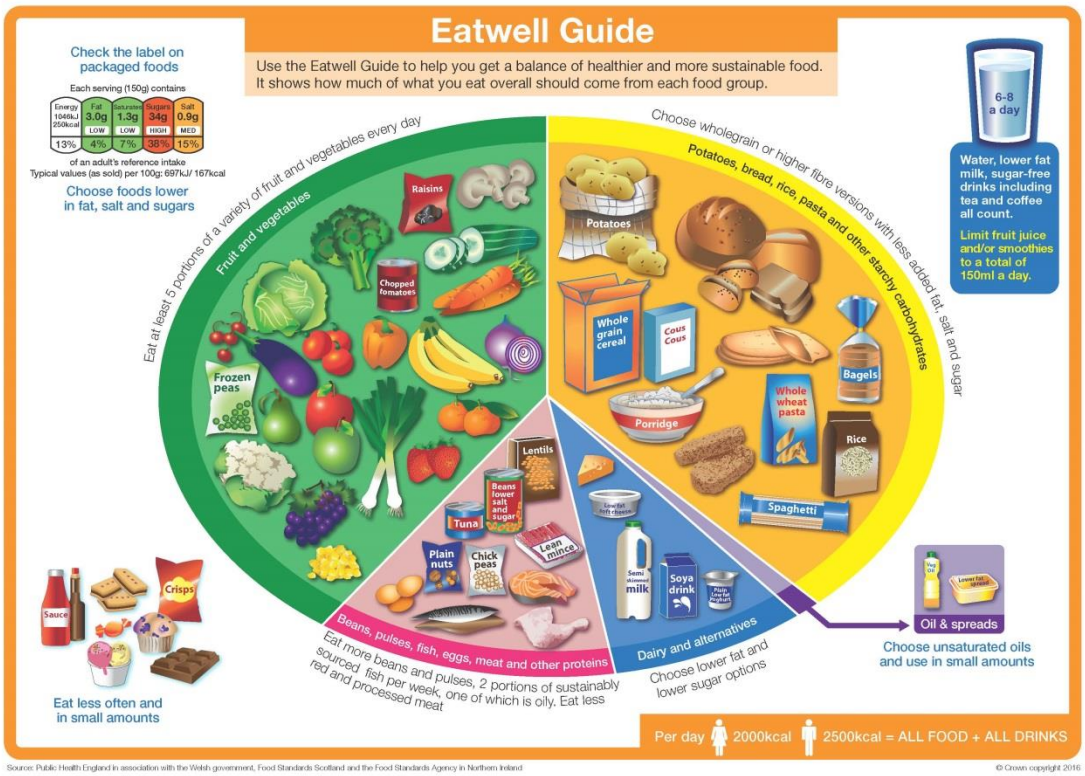
Good nutrition has a key role to play in both the prevention and management of diet-related diseases such as cardiovascular disease (CVD), cancer, diabetes and obesity (World Health Organisation, 2003). A child's diet during the early years has an impact on their growth and development. Diet is linked to the incidence of many common childhood conditions such as iron-deficiency anaemia, tooth decay and vitamin D deficiency (NICE 2015). Healthy eating during childhood and adolescence is vital as a means to ensure healthy growth and development and to set up a pattern of positive eating habits in order to reduce the risk of poor health in adult life.

Dietary intake and eating behaviours in England are related to socioeconomic position. People from lower socioeconomic groups tend to have diets that are less healthy than people from higher socioeconomic groups (Public Health England 2013). A poor diet is also associated with malnutrition and micronutrient deficiencies. Other effects include negative impacts on mental health, oral health and academic performance (British Medical Association 2015).

Unhealthy diets, along with physical inactivity, have contributed to the growth of obesity in England. The combination of unhealthy diets, physical inactivity, and high BMI is the biggest overall contributor to disability adjusted life years in England. Declines in mortality have not been matched by similar declines in morbidity, resulting in people living longer with diseases. (Newton et al 2015). The Department of Health has estimated that if diets matched nutritional guidelines, around 70 000 deaths in the UK could be prevented each year and that the health benefits (in terms of quality adjusted life years (QALYs)) would be as high as £20 billion each year (Cabinet Office 2010).

The promotion of evidence-based healthy eating messages is fundamental. Alongside this, it is necessary to ensure that guidelines concerning a nutritionally adequate diet are implemented to help prevent diet-related deficiencies and malnutrition in vulnerable infants, children and adults.

The Eatwell Guide is the current recommended pictorial representation of a balanced diet (Public Health England, 2016).



The Eatwell guide makes healthy eating easier to understand by giving a visual representation of the types and proportions of foods that should be eaten to provide a well-balanced, healthy diet. This includes snacks as well as meals. The Eatwell guide is intended as a guide to the overall balance of the diet over a day or a week rather than for any specific meal. Children under the age of two have different nutritional requirements so require tailored guidelines but by the age of five children should be eating a diet consistent with general population recommendations. This was reviewed in 2016.

Current nutritional guidelines:

Food Group/ Nutrient	Recommendations	Population Group	Reason for Recommendation on intake	Intake (national data)	Meets Recommendation
Total Carbohydrates	At least 50% of total energy (also includes the new maximum sugar recommendation)	Ages 2 years and above*	Source of energy	48% in 19-64 years olds 47.2% in adults aged 65 and over	Yes
Of which free sugars**	No more than 5% total energy • 19g or 5 sugar cubes for children aged 4 to 6. • 24g or 6 sugar cubes for children aged 7 to 10 • 30g or 7 sugar cubes for 11 years and over	Ages 2 years and above	Higher intake associated with greater risk of • Tooth decay • Type 2 diabetes • Energy intake resulting in weight gain and increasing BMI	Mean Intake • 4-10 year olds: 14.7% • 11-18 year olds: 15.4% • Adults aged 19-64: 11.5%	No
Fat	No more than 35% total energy	All	To reduce the risk of CVD and reduce the energy density of diets	Mean intake no more than 35% in all age/sex groups except Men aged 65 and over: 36%	Yes in all age/sex groups except men aged 65 and over
Of which saturated fat	No more than 11% total energy	All	To reduce the risk of CVD and to reduce the energy density of diets	Mean intake 12.6 % (19 to 64 years)	No
Trans fatty acids	No more than 2% food energy		To reduce the risk of CVD	Mean intake in all age/sex group: 0.6 – 0.7%	Yes
Salt	No more than 6g for adults (children need less)	Adults	To reduce the risk of hypertension and CVD	8.1g/day in adults aged 19-64 7.2g/day in older adults	No

Other nutrients/foods					
Fibre* **	• Adolescents aged 16 to 18 years and adults about 30g/day • 11 to 16 years 25 g/day • 5 to 11 years 20g/day • 2 to 5 years 15g/day	Ages 2 years and above	To have positive effects on • Blood lipids • Colorectal function	Mean intake in adults: 13.7 – 13.9g**** per day	No
Fruit and vegetables	At least 5 portions of a variety of fruit and vegetables a day	For aged 11 years and over	Reduces the risk of some cancers, CVD and other chronic conditions	Mean portion intake per day: • 4.1 in 19 to 64 years Old • 4.6 in older adults (30% of 19-64 years and 41% of older adults met recommendation) • 3.0 in 11-18 years old boys • 2.7 in 11-18 years old girls	No
Oily Fish	At least 1 portion per week (140g)	Adults	Cardio protective diet	Mean intake of 53 g (19 to 64 years) and 90g (Older adults) per week	No
Red and processed meat	Should not exceed 70g per day	Adults	Excess linked to cancer	Mean consumption 71g per day in 19-64 years olds(86g in men & 56g in women) 63g per day in adults aged 65 and over (75g in men & 54g in women)	Not in men

*No quantitative recommendations are made for children aged under 2 years, due to the absence of information, but from about six months of age, gradual diversification of the diet to provide increasing amounts of whole grains, pulses, fruits and vegetables is encouraged

**replaces the term NEMS and includes all monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices

***Dietary fibre should be defined as all carbohydrates that are neither digested nor absorbed in the small intestine and have a degree of polymerisation of three or more monomeric units, plus lignin The previous dietary reference value of 18g/day of non-starch polysaccharides, defined by the Englyst method, equates to about 23-24 g/day of dietary fibre if analysed using these AOAC methods, thus the new recommendation represents an increase from this current value

****As defined using Englyst method

This chapter considers the need for a healthy, nutritionally balanced diet. Related chapters include the Pregnancy, Early years and Obesity chapters.

Unmet need and gaps

- There is an increasing prevalence of obesity and diabetes in the local population
- There is a need to ensure that Nottingham is a city that promotes healthier eating in a broad and structured way taking every opportunity to tackle unhealthy diets as effectively as possible
- The local authority has an important role in considering planning applications for takeaways, both in terms of density and location.
- The PHE Sugar report identifies key recommendations to reduce the sugar intake of the population. There is a need to consider implementation at local level.
- The implications of legislation tackling high sugar and/or high fat diets needs considering. The government have introduced a sugar levy in the 2016 budget.
- There is a need for interventions involving diet in young children to be targeted at high risk groups as part of obesity prevention strategies. Such interventions should be based on available evidence and should be rigorously evaluated for effectiveness.
- Nationally, the health of most population groups would benefit from improved diet. However, groups with the highest risk of poor health due to diet include: Children aged 18 years and under, young adults aged 19-24 years, smokers, people in lower socio-economic groups, adults aged 65 years and over living in institutions and black and minority ethnic groups.
- Further work is required to develop approaches to improve maternal and childhood nutrition.
- On average, low income households and those in the most deprived wards consume less fruit and vegetables, salads, wholemeal bread, wholegrain and high fibre cereals and oily fish and consume more white bread, full fat milk, table sugar and processed meat products
- Further work is required to support culturally appropriate interventions aimed at improving diet and nutrition, including reducing salt intake.
- Accredited training in diet and health is not routinely delivered to many of those who have opportunities to influence others' food choices.
- There is evidence of Vitamin D deficiency and the re-emergence of rickets in some population groups
- In addition to the promotion of healthy eating, there is a need to consider nutritional adequacy of the diet and prevention of malnutrition.

Recommendations for consideration by commissioners

- Ensure that evidence based messages and the "Eatwell guide" are used to promote consistent messages concerning a nutritionally adequate diet, healthy eating and prevention of obesity, CVD and diabetes.
- Interventions to improve diet should prioritise low income groups who have been shown to have the poorest diet and the highest incidence of obesity
- Take forward the recommendations in the PHE Sugar reduction report in a strategic and coordinated way
- Continue to develop interventions that improve the nutritional knowledge and food preparation skills of priority groups

- Develop an implementation plan around obesity prevention in young children, ensuring integrated working across Children's Centres, Schools and other community settings
- Develop a better understanding of local beliefs and attitudes to food and nutrition in cultural groups at higher risk of diet related health conditions and use this to influence commissioning of interventions, to maximise behaviour change
- Raise awareness of lifestyle interventions at a lower BMI for priority BME groups to prevent Type 2 diabetes & stroke
- Influence diet in early years in particular schools through education and implementing recommended national & local council food policy.

- To work with take-away and other food outlets to improve the nutritional quality of food served.
- Use existing powers to regulate the opening times and number of take-away and other food outlets serving foods high in fat, sugar and salt in given areas and in particular near schools.
- Ensure all food procured by, and provided for, people working in this part of the public sector is in line with dietary recommendations made in the 'Eatwell guide'.
- Increased promotion of Healthy Start including vitamin supplements to both professionals and parents, particularly to those in target groups and those who do not access Children's Centres.
- Further partnership working to increase school meal uptake, whilst also evaluating and further developing initiatives to improve nutritional standards of packed lunches.
- To target 16 – 24 year olds as there are no specific schemes in place at present

What do we know?

1) Who is at risk and why?

General population

Over the last 30-40 years there have been profound changes in our relationship with food- how we shop and where we eat as well as the foods available and how they are produced. Food is now more readily available, more heavily marketed, promoted and advertised (PHE 2015) Sugar reduction report

The population as a whole tend to eat a diet that is too high in saturated fat, added sugars and salt, and low in fruit, vegetables, fibre and oily fish.
The National Diet and Nutrition Survey (NDNS) assesses the diet, nutrient intake and nutritional status of the general population aged 1.5 years and over in the UK. Comparisons between 2008/09-2011/12 suggest that total fat intake of the population has decreased but there is no consistent difference in intakes of sugar or fibre (Bates et al. 2014)

Key findings from NDNS 2011/12 include

- Fruit and vegetable intake below the 5-a-day recommendation in all groups. Thirty percent of adults and 41% of older adults met the '5-a-day' recommendation. In children aged 11 to 18 years only 10% of boys and 7% of girls met the 5-a-day recommendation.
- Consumption of oily fish in all age groups was well below the recommended one portion per week
- High intake of saturated fats (but around the recommended intake of total fat) in all groups
- Intake of trans fatty acids fell within recommended levels
- Alcohol makes a significant contribution to energy intake in some adults
- Mean intakes of sugar are three times higher than the new 5% maximum recommended level in school-aged children and teenagers and around twice the maximum level in adults. In children, the main source was soft drinks and fruit juice, followed by cakes, biscuits and breakfast cereals
- Low intakes of fibre
- Salt intakes higher than recommended in children and adults
- Evidence of low vitamin D status in all groups, particularly in children aged 11-18 years and adults over 65 years over the winter months
- Evidence of increased risk of iron deficiency in girls aged 11-18 years and women aged 19-64 years
- Low intake of vitamins and minerals including vitamin A, riboflavin, folate (in girls only) in 11-18 years age group and low intake of potassium, magnesium and selenium particularly in older children and adults

Low income and food poverty

The Low Income and Diet and Nutrition (LIDNS) survey commissioned by the Food Standards Agency (Nelson et al., 2007) found evidence that poor diet was highly prevalent amongst people on low incomes. On average those on low income were less likely to eat vegetables, wholemeal bread, wholegrain and high fibre cereals, oily fish and consume more white bread, full fat milk, table sugar and processed meat products. In children, the main source of sugar was soft drinks (not diet), which provided over one-quarter of intake in children aged 2–10 and over one-third in children aged 11–18. In low income households

lower than recommended consumption of fruit and vegetable portions was reported in men (2.4), women (2.5), boys (1.6) and girls (2.0). Higher intakes of saturated fat and salt and low levels of fibre, iron and vitamin D was also reported.

DEFRA's Family Food Survey (2013) found that fruit purchases of the poorest households fell by 19% and fresh vegetables fell by 18% but at the same time purchases of meat pies, burgers, ready meals increased by 32% and purchases of chips increased by 19% (DEFRA, 2013). It has been reported that poorer households spend proportionately more of their income on food and choose highly processed and high fat foods of poor nutritional quality in order to save money (Maslen et al 2013).

Food poverty is a term used to describe when a household or individual are unable to obtain a nutritionally adequate diet. The Department of Health's definition of food poverty illustrates the link between poverty and healthy food stating that it is "the inability to afford, or to have access to, food to make up a healthy diet" (Department of Health, 2005). Poor diet is a risk factor for cancer, coronary heart disease and diabetes and those living in the most deprived areas are disproportionately affected by these major diseases (Faculty of Public Health, 2005). Obesity is now a sign of food poverty, with those living in the most deprived areas, especially women and children, more likely to be obese compared to those living in the least deprived areas (Public Health England, 2014).

Food poverty can often affect the most vulnerable people in society including those with limited resources, those who are unemployed or on low income and those who have poor socioeconomic status (Maslen et al., 2013).
There are several population groups who are at risk of food poverty including:

- Older people
- Vulnerable adults (mental health, ill health, disabilities)
- Low income households
- Pregnant women/Teenage/single parents/parents on low incomes
- Homeless/asylum seekers

The LIDNS also highlighted the issue of food security with 36% of people reporting they could not afford to eat a balanced diet, 22% of people skipping meals and 5% not eating for the whole day because they did not have enough money to buy food. They also found that 29% of low-income households had experienced food insecurity in the past month. Food insecurity can be defined as "the state of being without reliable access to a sufficient quantity of affordable, nutritious food." (Loopstra et al. 2015).

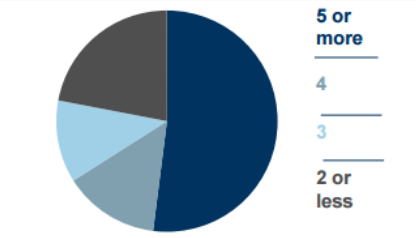
Food poverty has become increasingly evident with a significant rise in the number of food banks opening and an increase in the number of people accessing them. The term 'food deserts' has been used by policy makers to describe when communities lack access to healthy and affordable food. It is reported that people on low incomes pay more for basic necessities such as food and its estimated that the average low-income household pays an extra £1300 for essential goods (Parry, 2010). This is referred to as the 'poverty premium' and those living in deprived areas are thought to incur this through living in 'food deserts' with limited access to cheaper out of town supermarkets.

Education is associated with diet and physical activity behaviour, with lower educational attainment associated with poorer diet and lower physical activity levels (Public Health England, 2013) PHE Social and economic inequalities in diet and PA 2013.

Childhood diet – Fruit and vegetable consumption amongst 15 year olds - Results from the What About YOUth (WAY) Survey 2014

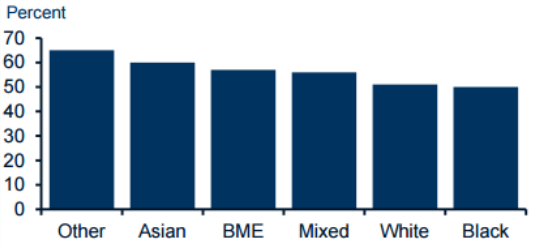
Portions consumed per day

52% of 15 year olds reported they consumed **5 or more** portions of fruit and vegetables a day.



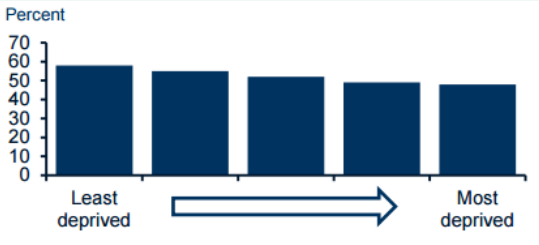
Consumption by ethnic group

60% of **Asian** children reported they ate 5 or more portions a day, compared to **50%** of **black** children.



Consumption by level of deprivation[1]

The proportion of children reporting they consumed **5 or more** portions a day varied from **48%** in the most deprived areas to **58%** in the least deprived areas.



Source: HSCIC (2016) http://www.hscic.gov.uk/catalogue/PUB20562/obes-phys-acti-diet-eng-2016-rep.pdf

Homelessness

Homeless people are amongst the most vulnerable population in society experiencing significantly poorer health outcomes than the rest of the population (Homeless Link, 2010). Food poverty and insecurity are highly prevalent and nutritional deficiencies contribute to poor health. Hostels, shops and fast food outlets are the main food sources for single homeless people, suggesting food choice, access and availability as barriers to a nutritious diet.

Mental health

Food is linked to mental health and wellbeing in a number of ways. Diet and nutrition can affect mood and be both protective and preventative for positive mental health and can aid recovery. The development of food skills can provide the tools to improve diet and nutrition and also impact on people's self-esteem, confidence and overall mental wellbeing (Scottish Development Centre for Mental Health, 2010). Common mental health problems such as depression and anxiety have been linked to obesity (Gatineau et al. 2013) and also poor nutrition. There is a two-way relationship associated between obesity and mental health in that people who are obese have an increased risk of developing depression whilst those who are depressed have an increased risk of becoming obese (Gatineau et al. 2013).

Ethnicity

Many people from minority ethnic groups have healthier eating patterns than the White population (HSCIC 2016). However there are considerable variations in dietary patterns across and within ethnic groups. These eating patterns are influenced by many factors including availability of food, level of income, health, food beliefs, dietary laws, religion,

cultural patterns and customs. Additional factors include age (and in particular, generation), region of origin and occupation (Gilbert, 2008).
There are gaps in understanding regarding the diets, nutritional and health status of smaller migrant groups (for example, from China, Iraq, Somalia and Eastern Europe) There are also many larger migrant groups, such as those from Pakistan and India, where little research is available and where risk factors are high for obesity-related health problems. A recent systematic review on the nutritional composition of children's diets found appreciable differences by ethnicity. Compared with White Europeans, children from South Asian ethnic groups and most notably Bangladeshi children, reported higher mean total energy intake. Black African and Black Caribbean children had lower fat intakes, and this was particularly marked among Black African children (Rees R, 2009). The MRC DASH study found that apart from Indians, adolescents from minority ethnic groups were generally more likely to engage in poor dietary behaviours than White adolescents, with those born in the UK and girls being most susceptible. Black Caribbean and Black African adolescents were the most likely of all groups to skip breakfast and engage in other poor dietary practices (Harding S, 2008).

One qualitative study, examining the food and eating practices of British Pakistanis and Indians with type 2 diabetes, found that many respondents attempted to balance the perceived risk of eating South Asian foodstuffs against those of alienating themselves from their culture and community (Lawton J, 2008). Another, focusing on women in the Somali community, found that they were influenced by cultural factors such as the traditional Somali diet of rice, pasta and red meat and an association of fruit and vegetables with poverty. They also lacked information on how to prepare healthy Western food (McEwen A, 2009). Focus group discussions with girls and young women from African and South Asian communities found that they tended to assimilate the fast-food aspect of the British diet into their eating habits (Lawrence JA, 2007).
Insight conducted on behalf of the Department of Health (DH) with parents from Black African, Black Caribbean, Bangladeshi, Indian and Pakistani communities looking at early feeding practices identified complementary feeding practices such as use of sweet foods, cereal-based thickeners and continuation of hand feeding, even when infants were able to feed themselves (DH 2008).
Thomas. J, (2002) cites the following targets for dietary intervention in the South Asian and African-Caribbean Communities:

- South Asian Communities: Increase vitamin D, iron, folate and vitamin B12 intakes.
- African Caribbean Communities: decrease salt and increase fruit and vegetable intakes
- Both communities: decreased total energy intake, decrease total fat, increase mono and polyunsaturated fat, increase fibre and consumption of low glycaemic index foods and reduce obesity and weight gain.

People of African, African-Caribbean and South Asian family origin and those who remain covered when outside or are housebound, are at particular risk of vitamin D deficiency. Almost 75% of Asian adults may have low vitamin D status in the winter (SACN 2007)

Disability
People with disabilities experience significantly poorer health outcomes than their non-disabled peers. A higher proportion of households with one or more disabled member live in poverty compared to households where no-one is disabled (Office for Disability Issues, 2012).
Adults with disabilities have higher rates of obesity than adults without disabilities (Gatineau et al. 2013). Obesity is associated with the four most prevalent disabling conditions in the UK: arthritis, back pain, mental health disorders and learning disabilities (Gatineau et al. 2013).

Learning disabilities

Adults with learning disabilities are one of the most vulnerable groups in society and experience many health inequalities. In general they have shorter life expectancy compared to the general population and are more likely to die from preventable causes (Nottingham City JSNA, 2011, The Caroline Walker Trust, 2009). People with learning disabilities are more likely to be either underweight or obese than the general population (Emerson et al. 2012) and are likely to be at risk of obesity at an earlier age than the general population (Gatineau et al. 2013).

In terms of diet, adults with learning disabilities tend to consume relatively low intakes of fruit and vegetables with less than 10% of adults with learning disabilities living in supported accommodation eat a balanced diet (Emerson et al. 2012). Poor dental heath also affects 1 in 3 adults with learning disabilities; this includes both unhealthy teeth and gums (Emerson et al. 2012).

People with learning disabilities have the same nutritional requirements as everyone else in the population, however may find it more difficult to access a healthy diet for a number of reasons. Physical problems with eating, chewing or swallowing, digestive problems, poor sight, hearing, taste or smell, abnormal eating behaviors, poor communication skills and lack of understanding about the need for a balanced diet (The Caroline Walker Trust, 2009). Also other barriers include a lack of accessible information and inadequate facilities to meet their needs (Nottingham City JSNA, 2011).

Diet and nutrition across the life course –key nutrition elements

Life stage	Key Nutrition Element	Reason for consideration
Pre-conception, pregnancy/post-natal	Folic acid	Linked to reduction in neural tube defects. Younger mothers and mothers from routine and manual occupations less likely to take supplements (Infant Feeding Survey, 2010)
	Vitamin D	Essential for skeletal growth and bone health. A newborn baby's vitamin D status is largely determined by the mother's level of vitamin D in pregnancy. (NICE, 2014)
	Iodine	Linked to growth and cognitive development. Girls of reproductive age and women prior to pregnancy are most at risk of deficiency. SACN 2011 highlighted that it is of considerable public health significance but at present there is insufficient evidence to make recommendations.
	Healthy Nutrition	A healthy diet is important for both the baby and mother throughout pregnancy and after the birth (NICE 2014). Obesity in pregnancy is associated with poorer outcomes for mother and baby.
Children aged 0-	Breastfeeding	Exclusive breastfeeding for the first 6 months is

3 years		the optimal way of feeding infants (WHO, 2011)
	Complementary feeding	Early childhood is a critical stage for the development of lifelong eating habits (Birch, 2010). Repeated exposure to foods during infancy promotes acceptance and preferences (Ventura, 2013). In a systematic review of interventions aimed at reducing the risk of obesity in early childhood, those that aimed to improve diet and parental responsiveness to infant cues showed most promise in terms of self-reported behaviour change (Redsell, 2015)
	Toddler nutrition	Poor nutrition in early years is common in disadvantaged populations and is associated with significant later health problems (for example tooth decay, anaemia, vitamin D deficiency and obesity) (Summerbell 2014). Data collected from the Growing Up in Scotland study from children at age five showed that 39% of children in the lowest income group were classified as having a relatively poor diet compared to 13% of children in the highest income quintile (The Scottish Government, 2015)
	Vitamin D	Prevention of rickets in infants and children
Children aged up to 18 years	High sugar intake and low vegetable/ fruit and fibre intake	High consumption of sugar is associated with tooth decay and obesity. Teenagers consume 50% more sugar on average than is currently recommended (PHE 2015).
	Poor Nutrition	Children aged 18 and under are at particular risk of poor dietary variety and low nutrient intake (SACN, 2008)
	Vitamin D	Vitamin D has been shown to have beneficial effects on musculoskeletal health including muscle strength and function in young people
Adults aged 19-64 years	High sugar, salt and saturated fat intake. Low fibre intake	If an individual is overweight or obese they are more prone to a range of serious health problems. These include cardiovascular disease; type 2 diabetes; endometrial, breast and colon cancer (Limm SS, 2012); as well as psychological and social problems such as stress, low self-esteem, depression, stigma, prejudice and bullying

		(Gatineau M, 2011)
	Poor Nutrition	Young adults, particularly girls, are at particular risk of missing out on nutrients required to grow and develop as a result of not having a balanced diet (SACN 2008) Inadequate intakes of vitamins and minerals has been identified as a concern in BME groups, particularly in relation to folate, vitamin B12, calcium and iron (the latter in females only) (Ngo, 2014).
	Vitamin D	Vitamin D has been shown to have beneficial effects on musculoskeletal health, particularly osteomalacia in all adult age groups, falling in adults > 50 years, muscle strength and function in adults
Adults 65 years and over	High sugar, salt intake. Low fibre intake	As for adults 19-64 years
	Vitamin D	As for adults 19-64 years
	Poor Nutrition	Ill health, social and environmental factors can contribute to poor nutrition. Malnutrition levels among older people are an indicator of food poverty and it is estimated that nationally malnutrition affects over 10% of older people aged 65 and over (BAPEN, 2006). There is evidence of low intakes and status for a number of vitamins and minerals for older people living in institutions. The Nutrition Screening Survey (BAPEN, 2008) found that 42% of recently admitted residents in care homes were malnourished.

2) Size of the issue locally

As already described, Nottingham like most areas has a lack of dietary and nutritional information about its local population. It is likely that the overall dietary patterns described in section 1 for the general population, low income groups and black and minority ethnic groups and children are issues in the city's population. Low income groups tend to live more in deprived areas which experience the highest morbidity and mortality in the city.

The measurement of dietary intake and nutritional status is complex. Self- reported fruit and vegetable consumption is the main measure used to assess public health nutrition. National data on fruit and vegetable consumption is available in the future as part of the Public Health

Outcomes Framework, Health Improvement Domain for the proportion of adults aged 16 and over consuming 5 portions of fruit and vegetables per day, with data at local authority level (see information below), in which Nottingham City can be seen to be considerably lower than its CIPFA comparators and the England average.

Figure 1: Proportion of the population meeting the recommended '5 a day' (Source: PHOF 2016/ 2014 Sport England Active People Survey, Nottingham City with CIPFA comparators)

2.11i - Proportion of the population meeting the recommended '5-a-day' 2014 Proportion - %

Area	Rank	Count	Value	95% Lower CI	95% Upper CI
England	-	-	53.5	53.2	53.7
Liverpool	2	-	42.1	39.6	44.7
Sandwell	6	-	42.2	39.0	45.5
Nottingham	-	-	43.6	40.4	46.9
Leicester	5	-	43.9	40.8	47.1
Kingston upon Hull	4	-	44.4	40.9	48.0
Coventry	8	-	44.6	41.4	47.8
Southampton	11	-	46.5	42.9	50.2
Stoke-on-Trent	10	-	47.0	43.4	50.6
Wolverhampton	7	-	48.1	44.5	51.7
Rochdale	12	-	48.8	44.8	52.7
Bolton	13	-	48.8	45.4	52.3
Salford	3	-	49.4	45.7	53.1
Gateshead	15	-	51.2	47.2	55.1
Derby	14	-	52.6	48.9	56.3
Sheffield	9	-	56.6	54.2	59.0
Newcastle upon Tyne	1	-	56.9	53.5	60.2

Source: Sport England Active People Survey

Issues of Inequality

Food poverty: An access to healthy food study 'Mapping Access to Healthy Food in Nottingham City' was produced by the Food Initiatives Group in partnership with the Transport Strategy and Food Licensing teams at Nottingham City Council (FIG et al, 2008). The study focused on the Aspley and Leen valley Wards. It used a methodology combining GIS analysis, a shopping basket survey into the availability of affordable food and focus groups with residents. The study found that availability of a range of healthy food representing a healthy shopping basket was limited in small local shops and food prices were generally higher in these shops than in supermarkets. The prevalence of fast food outlets and their use by school children at lunchtimes was also highlighted. 50% of shops in the area were takeaway food outlets. However, it was found that most residents should be able to access the shops which do sell affordable food in a reasonable time but this may be limited for some groups such as the elderly and compounded by relatively low car ownership. Psychosocial factors were noted as non-physical barriers to good nutrition, such as lack of cooking skills and low incomes. The report was used to attract further funding to address access to healthy food issues in the area. The study clearly highlighted that access and availability are significant barriers to healthy eating.

Homeless people

A local audit of the health and wellbeing needs of 349 homeless people in Nottinghamshire reported that 29% of the sample ate less than 2 meals per day and 34% reported eating no fruit and vegetable per day (Poyser, 2013).

A survey of 41 homeless adults (from four homeless services) in Nottingham showed that the average number of meals that participants consumed was 2 meals per day. Only 5% of this sample consumed the recommended 5 portions of fruit and vegetables per day. Almost a third (30%) reported spending less than £20 per week on food (Woods 2014). Homeless service providers including hostels and day centres play an important role in terms of food provision and ensuring food security of their service users.

Low income groups

Nottingham City has a relatively deprived population in the national England context. The city is ranked the 8th most deprived out of the 326 districts in England, in the 2015 Indices of Multiple Deprivation (IMD) using the Average Score measure. 68 City Super Output Areas (SOA's) fall within the 10% most deprived in the country for Income deprivation affecting children, with 108 in the most deprived 20%. For Income Deprivation affecting Older People, a total of 95 SOA's rank in the most deprived 20%. It is therefore expected that many of the specific dietary issues identified in the Low Income and Diet and Nutrition Survey (Nelson et al. 2007), described previously, may apply in the local population.

Children aged 18 years and under

According to 2014 Mid-Year population estimates, there are approximately 79,500 children and young people aged between 0 – 19 years resident in Nottingham City. As 78% of children fall in the first 3 deprivation deciles[1], it is likely that a large proportion of children and young people in Nottingham are not having nutritionally adequate diets.

Young adults aged 19-24 years

There are approximately 60,000 students studying at the two Nottingham Universities, University of Nottingham (UoN) and Nottingham Trent University (NTU), of which 46,500 are undergraduates. Around 70% live in Nottingham City with another 7% each in the surrounding districts of Broxtowe and Rushcliffe. Approximately 15% of the Nottingham City population are students, compared to a national average of 3%[i]. This, in addition to inward migration of young immigrants from Eastern Europe means that Nottingham City has a high proportion of young people.

According to the Experian Mosaic Grand Index data, types J42 Learners and Earners ('Inhabitants of the university fringe where students and older residents mix in cosmopolitan locations) and J43 ('Students living in high density accommodation close to universities and educational centres') underrepresented for being classified as obese (with index values of 46 and 14 respectively), and overrepresented for doing exercise for 2-4 hours per week (index values of 158 and 134). Type J43 is under-represented for consuming at least 5 portions of fruit and vegetables a day (index values of 78) though Type J42 is close to the national average. (Source: Experian Mosaic grand index data, available here on Nottingham Insight).

[1] Based on all children attending City schools (which will include some county resident children), and IMD 2015 overall scores applied to Jan 2016 school census. A figure based on all city children by IMD decile (which is not available) would give an even higher percentage. Source: Strategic Insight team

This would appear to indicate that with respect to nutrition, physical activity and obesity students are healthier than the general population.

Data from the GP practices are in agreement with the Mosaic data in that generally, the student population are of a healthier average weight and BMI than the general population in Nottingham partly because they are younger and also reflecting their more affluent socio-economic status and level of education.

(Source: Nottingham City Student JSNA chapter, 2016).

Smokers

The link between smoking and poor nutritional status is an issue of concern, particularly as Nottingham has high levels of smoking prevalence consistent with deprivation. Smoking in the city is very much related to deprivation and therefore the majority of smokers are estimated to be part of the deprived population described above.

Adults aged 65 years and over living in institutions

According to the 2011 census, there are approximately 1345 people aged 65 and over living in 'communal establishments' There is a lack of local data around nutritional status amongst this group; however national data suggests that approximately 400- 560 of these adults could be malnourished. (Source: Bapen 2010)

Black and minority ethnic groups

Local qualitative research has identified high levels of salt use in cooking in African Caribbean and South Asian women in the City (DH Insight, 2007)i (however there is no reason to assume this is higher than the general population or high income groups). As highlighted other specific concerns maybe a relatively higher intake of fat amongst Pakistani communities, low vitamin D status and exposure to the sun. There are 1-2 cases per annum (NHS Nottingham City 2006-2008) locally of rickets due to Vitamin D deficiency. There is anecdotal evidence that the number of cases of rickets may be rising locally although this needs to be explored further.

3) Targets and performance

Relevant indicators in the Public Health Outcomes Framework are given below:

2.11i Proportion of the population meeting the recommended '5-a-day'

2.11ii Average number of portions of fruit consumed daily

2.11iii Average number of portions of vegetables consumed daily

4) Current activity, service provision and assets

There are many other services described in the obesity JSNA chapter, some of which (but not all) are described here. Please also refer to the obesity chapter, and the physical activity chapter, for a full picture.

<u>Strategic context</u>

Improving the diet of the local population is a priority in the context of improving the health and wellbeing of the city's population and reducing health inequalities and is a priority within the City's Health and Wellbeing Strategy 2016-2020. It contributes to reducing cardiovascular disease mortality and obesity in children and adults, which are priorities in the Nottingham Plan. Improving diet and nutrition also contributes to reducing the prevalence and improving the management of people with diabetes.

Nottingham CityCare Partnership

Healthy Change - a telephone based lifestyle referral service commissioned by Nottingham City Council. Healthy Change supports adults, with one or more cardiovascular disease risk factors, to set goals for behaviour change and supports them in accessing a range of other commissioned lifestyle prevention services.

Public Health Nutrition Team- offer practical nutrition and healthy eating cooking skills programmes designed to increase knowledge, confidence and skills to choose a healthy diet. For example, the Eatwell for Life programme incorporates behaviour change techniques such as group discussions and goal setting, to help participants make practical changes to their eating habits. Programmes are tailored to client group needs and are underpinned by evidence based healthy eating and nutrition messages. Evaluation indicates that the Eatwell for Life programme leads to positive and sustained changes in participants cooking and eating behaviours. Data for 2014/15 identifies that 841 adults/children accessed and completed 6 week practical healthy eating programmes. A further 475 adults/children attended one- off nutrition education sessions. The team also provide nutrition expertise to CityCare and local authority staff to ensure that nutrition messages are consistent, age appropriate and relevant to family circumstances. They work with partners to increase capacity through provision of training, support and quality assurance, to enable workers/volunteers to raise awareness of healthy eating or deliver nutrition and healthy eating activities directly with the public. For example, working with health visiting, schools and community organisations.

Clinical Dietetic Service – The work of this team encompasses delivery of a clinical dietetic service for a wide variety of diet-related medical conditions (e.g. obesity, diabetes, food allergies, gastrointestinal conditions, malnutrition / nutritional support, and children's dietary problems). The service also provides training and specialist support to help other health professionals to give first line dietary advice. Within the city dietetic clinics are provided in 13 locations. Individuals with special dietary needs can be referred to this service by their GP or health professional for advice from a Registered NHS Dietitian. In addition, structured telephone advice is provided to both patients and health care professionals.

Healthy Child Programme 0-5 years – the health visiting service provide information and support around nutrition and healthy eating for pregnant women, infants, children and families in Nottingham. They promote the national Healthy Start programme which provides vouchers to exchange for fruit, vegetables, milk or infant formula and vitamin supplements. The scheme is open to pregnant women and families with children under 4 on a low income.

Vitamin D supplementation programme – facilitated by health visiting, to support the uptake of Healthy Start vitamins to all pregnant and breastfeeding mothers and all infants and children from 1-4 years who are from ethnic minority groups at risk of vitamin D deficiency.

Small Steps Big Changes (SSBC) – Big Lottery funded A Better Start Programme – Over the next 10 years SSBC will focus on three themes, Social and Emotional Development, Speech and Language, and Nutrition, to improve outcomes for pregnancy and the first three years.

Breastfeeding Peer Support (universal) - Nottingham CityCare Partnership provide universal peer support groups for all mothers by volunteer peer supporters. These are delivered in Children's Centres and other community venues. Some groups are also supported by Family Support Workers.

Healthy Child Programme 5-19 (universal programme) - School nurses lead the implementation of the HCP for school aged children. The early identification and prevention of obesity is a key priority in the HCP which is delivered in partnership by school nurses, play and youth and schools/education, All children/parents are offered information and advice about nutrition, physical activity and healthy weight during universal health assessments at school entry, Year 7 and Year 9.

National Child Measurement Programme (NCMP) - The local NCMP is delivered by Nottingham CityCare Partnership school nursing service. Nurses records height and weight measurements of all children in state-maintained schools in reception (aged 4–5 years) and year 6 (aged 10–11 years). Parents/ carers of all children are sent a results letter for their child along with information, advice and support as required.

Whole School approach to Food - Food for Life have been commissioned to work with 40 schools in Nottingham to give school pupils and their families the confidence, skills and knowledge they need to cook, grow and enjoy good quality, affordable food. To use healthy school meals and the school dining experience as a way to improve nutrition behaviours, positive social interaction and learning opportunities within schools and in the related community.

<u>Other commissioned services</u>

Slimming World - offers adults with a BMI > 30 or adults of Asian ethnicity with a BMI > 27.5 a free 12- week voucher to attend a local Slimming World group. Targets to lose 5% body weight are set during this time. The service sees approximately 2000 clients per year and a high percentage achieve a 5% weight loss in the 12 week period.

Whole School approach to Food - Food for Life have been commissioned to work with 40 schools in Nottingham to give school pupils and their families the confidence, skills and knowledge they need to cook, grow and enjoy good quality, affordable food. To use healthy school meals and the school dining experience as a way to improve nutrition behaviours, positive social interaction and learning opportunities within schools and in the related community.

The Cares for Kids Breakfast Clubs - The Cares for Kids charity supports 44 Breakfast Clubs in Nottingham City schools, providing a free breakfast for 1200 children every day.

Many of the services above will be re-commissioned by Public Health in the local authority from April 2017.

Local authority provision

Schools and Academies Catering - School lunches provided by Nottingham City council comply with the new School Food Standards set by the government. Allergen information is available to all customers through the school catering team, in addition to advice on any medical or religious diets. Data for 2014/15 shows that the average uptake of meals in Primary Schools, that have their meals supplied by NCC, for KS1 was 81% and total uptake for meals was 67%. Nottingham City Council Schools & Academies Catering Service has successfully achieved Bronze Food for Life accreditation and aims to have Silver by this year end. They support National School Meals Week and National Roast Dinner day in schools across the city. Nottingham City Council have been working in conjunction with The Soil Association Food for Life Programme to make school and families aware of the importance of school meals across the City.

Healthy Children's Centre Standard – The Healthy Children's Centre standards are due to be re-launched by NCC Education Partnership during 2015. Children's Centres will work towards achieving best practice criteria within four core themes of Personal, Social and Emotional Development, Healthy Eating, Physical Activity and Play and Emotional Health & Wellbeing.

PSHE Advisory Service (previously known as Healthy Schools) - NCC's PSHE Advisory Service provides a free universal advisory service for schools within the City. The key objectives of the service are:

• To support City schools' to achieve/maintain their Local Healthy School Status (HSS) (based on the national criteria) within a 3 year Plan-do–Review cycle

• To support City schools who wish to develop a more targeted/needs led approach to pupil health and welfare through implementing the Health and Well-being Improvement Model (HWBIM). Schools are supported to achieve best practice criteria within the four core themes of PSHE, Healthy Eating, Physical Activity and Emotional Health and Wellbeing in order to achieve Healthy School Status. The Health and Well-being Improvement Model (HWBIM) offers schools the opportunity to focus on a key health theme, including 'Healthy Weight', and identify measurable outcomes for children and young people.

Food banks

In Nottingham City there are 13 foodbanks operating in the area. Information on foodbanks and community cafes is available here: http://www.nottinghamcvs.co.uk/news/article/ncvs-creates-google-map-showing-where-all-city-foodbanks-are

Adults at risk of poor nutrition

MUST (malnutrition universal screening tool) training is provided for community nurses in the city to ensure compliance with the All Nutritional Supplements (Sip Feeds) Guidelines for Adults (Nottingham CityCare Partnership 2013) and to identify and manage undernutrition in adults in the city. Training is currently provided to care home staff by a Registered Dietitian to promote the identification and treatment of poor nutrition.

Community specialist weight management service (Tier 3 service)

For City CCG patients with a BMI≥40 or 35+ with associated co-morbidities i.e. cardiovascular disease, respiratory disease, hypertension or diabetes.

This service provides psychological and dietetic support to help patients make long term lifestyle changes to manage their weight and improve their health and quality of life. Patients All patients will also be offered an appointment with a metabolic consultant to assess their suitability for surgery. This service is a long term commitment and patients must have accessed the service for at least 12 months before a referral on to Tier 4 services (bariatric surgery) will be considered.

5) Evidence of what works

Increasing the consumption of fruit and vegetables can significantly reduce the risk of many chronic diseases. Oyebode et al, (2014) used the Health Survey for England to study the eating habits of 65,226 people representative of the English population between 2001 and 2013, and found that the more fruit and vegetables they ate, the less likely they were to die at any age. This is the first study to link fruit and vegetable consumption with all-cause, cancer and heart disease deaths in a nationally-representative population, the first to quantify health benefits per-portion, and the first to identify the types of fruit and vegetable with the most benefit. Compared to eating less than one portion of fruit and vegetables, the risk of death by any cause is reduced by 14% by eating one to three portions, 29% for three to five portions. The study found that vegetables had the strongest protective effect, with each daily portion reducing overall risk of death by 16%. Salad contributed to a 13% risk reduction per portion, and each portion of fresh fruit was associated with a smaller but still significant 4% reduction.

There is a particular emphasis on diet and nutrition in the following Public Health NICE Guidance and Quality Standards:

PH25	Prevention of cardio-vascular disease	2010
PH47	Weight management before, during and after pregnancy	2010
PH42	Obesity: working with local communities	2012
PH47	Managing overweight and obesity among children and young people: lifestyle management services	2013
PH11	Maternal and child nutrition	2014
PH56	Vitamin D: increasing supplement use in at-risk groups	2014
PH53	Weight management: lifestyle services for overweight or obese adults	2014
CG159	Obesity: identification, assessment and management	2014
PH55	Oral health: local authorities and partners	
PH49	Behaviour change: individual approaches	2014

NG7	Maintaining a healthy weight and preventing excess weight gain among adults and children	2015
QS94	Obesity in children and young people: prevention and lifestyle weight management programmes	2015
QS111	Obesity in Adults: prevention and lifestyle weight management programmes	Jan 2016

SACN had the following recommendations in its Nutritional Wellbeing of the Nation report (SACN, 2008):

- Reducing sugar and saturated fats whilst increasing intakes of fats from oily fish, nuts and seeds.
- Encouraging children to drink low fat milk rather than soft drinks.
- Promoting diets rich in non-starch polysaccharides (fibre) to reduce the risk of bowel disease.
- Encouraging people to eat more fish, particularly oily fish, would help to reduce the risk of cardiovascular disease.
- Reducing alcohol consumption.
- Vitamin D supplementation in institutionalised older people. Promotion of vitamin D rich foods, outdoor activity and supplementation for high risk groups (dark-skinned ethnic minorities, people who cover their skin, young children and pregnant and breastfeeding women) especially during winter months.
- Continue to promote a balanced nutrient dense diet [e.g. Eatwell Plate model] in the context of a healthy lifestyle particularly targeted at young people, older adults living in institutions and people in lower socioeconomic groups.

SACN examined the latest evidence on the links between consumption of carbohydrates, sugars, starch and fibre and a range of health outcomes (such as heart disease, type 2 diabetes, bowel health and tooth decay) in Carbohydrates and Health (2015) and found that:

- Higher consumption of sugars is associated with a greater risk of tooth decay.
- Consuming too many high sugar beverages is associated with increased risk of Type 2 diabetes
- The higher the proportion of sugar in the diet, the greater the risk of high energy intake. For overweight individuals, reducing the percentage energy intake from free sugars, in the absence of increased energy intake from other sources, could result in weight loss.
- Increased intakes of dietary fibre, particularly cereal fibre and wholegrain, are associated with a lower risk of coronary events, type 2 diabetes, colo-rectal and colon cancer.

Sugar Reduction: The Evidence for Action (Public Health England, 2015)

This report details a review of the evidence on interventions to help the nation reduce their sugar consumption. It highlights that no single action will be effective in reducing sugar intakes. This is too serious a problem to be solved by approaches that rely only on individuals changing their behaviour in response to health education and marketing, or the better provision of information on our food. The environmental drivers of poor diets we face are just too big. Implementing a broad, structured programme of parallel measures to reduce the impact of influences that increase consumption, reduce the sugar content of food and drinks, and support people in making healthier choices through information and education, would be likely to achieve meaningful reductions in sugar intakes across the population.
Summary of areas for action

- Reduce price promotions in retail outlets
- Reduce opportunities to advertise high sugar foods in the media
- Clearly defining high sugar foods

- Gradual sugar reduction in everyday foods
- Price increase of 10-20% on high sugar products
- Ensure provision and sale of healthier foods across the public sector
- Accredited training to everyone who influences food choice
- Provide practical steps to help people lower their own and their families sugar intake

The government have introduced a sugar levy in the 2016 budget (which was one of the eight recommendations in the above report), and is an early indication of their support on child obesity.

Behaviour Change
NICE guidance (NG7, 2015) makes recommendations on behaviours that may help people maintain a healthy weight which includes encouraging dietary habits that reduce risk of excess energy intake. Training and competencies are identified as key for all health, public and social care practitioners to support obesity prevention. The role of families and carers is recognised in the decision-making process about initiatives to help children and young people maintain a healthy weight (NICE quality standard 94, 2015). NICE also highlights the need to raise awareness of the importance of lifestyle interventions at a lower BMI threshold for black, Asian and other minority ethnic groups to prevent conditions such as Type 2 diabetes, myocardial infarction or stroke (NICE PH46, 2013).

Influencing diet in early years
Interventions focused specifically on the promotion of a healthy diet in young children were found to be successful in improving children's diet where they were intensive, incorporated behavioural theories, gave a clear message and were tailored to parents' educational level and family resources. Interventions for children aged 2-5 years were successful in improving children's acceptance of novel or previously disliked foods if they included behavioural approaches, avoided a didactic approach, used food-based activities and repeated exposure, included food tasting and offered choice rather than simple exposure (D'Souza L, 2008). Bourke M, (2014) in a review of interventions to tackle obesity in children concluded that a holistic approach is required which targets behaviour change in multiple aspects of children's lifestyles and their surroundings, including nutritional education, parental support and physical activity. There is a lack of evidence around the most effective interventions to support obesity prevention in young children although most of the approaches used in published RCT's appear to have produced some improvement in health behaviours (e.g. family nutritional practices, child food intake, child sedentary behaviour) (PHE, 2015)

Local good practice
The last Diet and Nutrition JSNA in 2011 suggested there was a need for more evidence and evaluation of local community nutrition interventions. A recent research evaluation has been undertaken of the Eatwell for Life (cook & eat courses) programme delivered by Nottingham CityCare Partnership (Woods, 2015).
The Eatwell for Life programme is a 6-week community-based dietary intervention, which aims to increase nutritional knowledge, cooking confidence and skills to support behaviour change in relation to eating a balanced diet. The programme is commissioned by Nottingham City Council. Courses are delivered over 6 weeks with each week lasting 2 hours. Courses consist of approximately 6-10 participants and are held in community centres, Children's Centres and schools. The intervention has been developed by a team of Public Health Nutritionists whom coordinate the courses across the city and delivered by a team of Community Food Workers.
There have been many evaluations of community based dietary interventions but most focus on brief measures and changes examined at the end of each course. This evaluation had a particular focus on longer-term effectiveness in terms of dietary behaviour and the wider

impact on course participants. The mixed method evaluation demonstrated improvements in participants' fruit and vegetable consumption and a reduction in participants' sugar consumption. Qualitative data highlighted themes of more cooking from basic ingredients; knowledge of key healthy eating messages had increased; changes in terms of eating, cooking and shopping habits; wider influences on family and friends diets and gaining a social element from the course. The wider impact of this intervention demonstrated a positive return on investment for practitioners and commissioners in public health working on obesity and health inequalities agendas.

Adults at risk of poor nutrition

Nationally a Malnutrition Task Force was established in 2012 to provide a joined up approach across the NHS, residential care and care in the community to prevent and reduce malnutrition in older people. There is a need to identify and assess the impact of interventions taking place at local level.

6) What is on the horizon?

Risk factors for poor diets are increasing, for example the proportion of people from BME communities, deprivation, young people. Obesity and the prevalence of type 2 diabetes is increasing. When looking at excess weight (overweight and obesity), Nottingham's prevalence of excess weight in Reception aged children appeared to be levelling off, if not declining, however in 2014/15, prevalence was higher than it has been since the NCMP began in 2006. Prevalence in Year 6 children also appears to be increasing and the inequality gap between the England average also appears to be increasing.

Some data (Family food survey (2016) DEFRA) indicates that nationally diets may be becoming healthier in some ways for example consumption of fruit and vegetables and skimmed milk rather than whole milk has increased but on the other hand consumption of convenience foods and takeaways has soared.

The government has introduced a sugar levy in the 2016 budget which is a really positive statement of the government's commitment to improving diet and nutrition and tackling obesity.

A national Change4life campaign is planned by Public Health England for 2016 and a new National child obesity strategy is expected in 2016.

The commissioning of 0-5 children's public health transferred from NHS England to local authorities in October 2015. This includes health visiting and Family Nurse Partnership ((FNP) targeted services for teenage mothers). One of the high impact areas for the Healthy Child Programme is healthy weight, healthy nutrition (to include physical activity)

7) Local Views

Children and Young People

Parents of the 17 children who had completed the 3 month Healthy Weight Support Programme (September 2014 – March 2015) were sent satisfaction questionnaires. Three (18%) were returned. All parents rated the service as 'excellent'. Parents particularly liked the free leisure provision provided through leisure centres, visual aids, the sugar and fat kits and sample meal images. Parents talked about the difference the programme had made to the whole family. The key suggested improvement to the programme was to improve the leisure offer to children aged over 8 years, especially teenagers. Caution must be exercised in interpreting these views as being representative of all users, due there only being three responses.

Adults
A Nottinghamshire County Health and Wellbeing Board seminar held in October 2015 focused on how the planning system can promote healthy communities, ensure adequate healthcare infrastructure and reduce health inequalities. It was held as part of a national programme of seminars and examined the planning and commissioning of healthcare infrastructure. It provided some useful insights for County colleagues and a similar event for the City would be beneficial for improving understanding between professionals to enable the planning of an environment conducive to reducing obesity.

Focus Group: 9 Your City, Your Say Nottingham Citizens' Panel members took part in a focus group to help identify sensible approaches to tackling obesity, what could help citizens to maintain a healthy weight in Nottingham and how to communicate these. The group provided some valuable insights from a citizens perspective.

The following key areas emerged from the discussion:

- A key theme was environment versus individualism:
  "Some areas like the council estate I live on for last 10 years is one of the lowest statistics for many things. We have constant take away menus and poor access to fresh fruit and veg and meat. There needs to be local community place to access these run by a charity or community non-profit complete with lists of cheap fresh meals from scratch"

- Individuals are impacted by their environment and if their environment is obesogenic then it is harder to lose weight:
  "Many of the key points we made – and I made them as much as anyone else – seem on reflection to be putting the onus of responsibility upon the individual. This ignores the fact that the individual is a largely powerless figure in today's mass society, yet, it is a style of thought that has grown in our society since approximately the mid 1980's"

- Citizens with existing health conditions experience side effects of some medication of 'weight gain' and people who give up smoking may gain weight due to improved absorption of food and increase in appetite.
  "Mental health 'victims' need a softer approach, often weight gain is a side effect of medication, as with some pain relief etc."

  "The media are telling people things regarding "obesity". Whether that information is correct or not is a moot point. Much of it seems to regard people as a kind of dodgy, shiftless mass, wandering blindly to their own destruction, as, to be fair, does most of the suggestions that we made. It does not take into account other causes, for example, medication and non-smoking."

  "I believe that much of my own weight gain is down to two main factors:
  a) The use of amytriptyline which I was first prescribed xx 7 years previously xx, and
  b) Stopping smoking, which I believe does a lot of good early in life - and virtually none when you are older as I am now. Weight gain is certainly related to it, and many people have given up smoking in recent years."

- Carers were identified as an unseen 'at risk' group:
  "One high group of obese people are often carers (not the paid type who do it for a job) due to demand and lack of sleep as well as stress and injury. These

people need more help either via schools, carer's federation or support groups of health/social. Many of these and disabled often have less access to shopping or just one pair of hands to do everything - they are often a forgotten part of society and their own health need gets seriously neglected, wrongly labelled by professionals"

- Access to physical activity opportunities need to be inclusive.

  "I do think it needs highlighting the lack of specific information for disabled people with impaired mobility / movement. Nottingham has more disabled people than the National Average and there are more disabled people with weight / obesity difficulties than non-disabled people. Yet there remains no quality, specific or even targeted information / support around diet, nutrition and appropriate focused physical activity."

- Council to encourage new and change of use building developers to include washing and changing facilities and cycle parking at places of work through planning guidance and tax reduction incentives.
- Expand/promote vegetable growing projects – children and families connected with the earth and benefitting from fresh fruit and vegetables
- Timing and personal support is crucial – "You can use neon posters 30' square that flash with dancing gorillas and the message will still be missed! " Female respondent.
- Positive messages – 'real life' stories work best
- For many people the cause of their obesity cannot easily be addressed by the individual without professional help. Awareness needs to be raised about the causes and practical information about how to tackle obesity.
- There is an overemphasis on ease of weight loss e.g. through exercise. Information is needed about the best way to lose weight.

  "Some areas like the council estate I live on for last 10 years is one of the lowest statistics for many things. We have constant take away menus and poor access to fresh fruit and veg and meat. There needs to be local community place to access these run by a charity or community non-profit complete with lists of cheap fresh meals from scratch"

  "People need to see who they are, and shown what they could be. Many lack major skills. Many have life stories to tell. Listen to them, accept them and educate them."

Men's attitudes to healthy weight and weight management: Qualitative interviews were commissioned in 2011 to provide insight into developing healthy living interventions aimed at men aged 40 and over who were overweight (DH Insight, 2011). Amongst 39 participants this demonstrated the understanding of the need to lose weight and understanding of how to do this. They felt they had a lack of motivation to do so and that traditional dieting was not for them as it did not fit in with the male psyche. The research has provided insight to inform the commissioning of these services.

Pregnant women

Maternity services staff conducted a focus group with 8 women with a pre-pregnancy BMI of 30 or over in March 2012. Key themes identified were:

- Inconsistencies in being weighed or during pregnancy or having high BMI explained.
- Patients wanting to know the risk of their excess weight to their pregnancy and labour.
- Cultural barriers to eating healthily in pregnancy and postnatal amongst Asian women, where women can be encouraged to 'eat for two' and be nurtured with food.
- Patients wanting consistent advice and support about healthy eating throughout pregnancy.

- Confusion in being told not to exercise during pregnancy due to medical problems and then gaining weight.
- Need for accessible/available exercise groups.
- Interest in being able to access Slimming World during pregnancy.

What does this tell us?

8) Unmet needs and service gaps

- There is an increasing prevalence of obesity and diabetes in the local population
- There is a need to ensure that Nottingham is a city that promotes healthier eating in a broad and structured way taking every opportunity to tackle unhealthy diets as effectively as possible
- The local authority has an important role in considering planning applications for takeaways, both in terms of density and location.
- The PHE Sugar report identifies key recommendations to reduce the sugar intake of the population. There is a need to consider implementation at local level.
- The implications of legislation tackling high sugar and/or high fat diets needs considering. The government have introduced a sugar levy in the 2016 budget.
- There is a need for interventions involving diet in young children to be targeted at high risk groups as part of obesity prevention strategies. Such interventions should be based on available evidence and should be rigorously evaluated for effectiveness.
- Nationally, the health of most population groups would benefit from improved diet. However, groups with the highest risk of poor health due to diet include: Children aged 18 years and under, young adults aged 19-24 years, smokers, people in lower socio-economic groups, adults aged 65 years and over living in institutions and black and minority ethnic groups.
- Further work is required to develop approaches to improve maternal and childhood nutrition.
- On average, low income households and those in the most deprived wards consume less fruit and vegetables, salads, wholemeal bread, wholegrain and high fibre cereals and oily fish and consume more white bread, full fat milk, table sugar and processed meat products
- Further work is required to support culturally appropriate interventions aimed at improving diet and nutrition, including reducing salt intake.
- Accredited training in diet and health is not routinely delivered to many of those who have opportunities to influence others' food choices.
- There is evidence of Vitamin D deficiency and the re-emergence of rickets in some population groups
- In addition to the promotion of healthy eating, there is a need to consider nutritional adequacy of the diet and prevention of malnutrition.

9) Knowledge gaps

- Currently there are no suitable methods for collecting comprehensive local data on diet and nutrition and there are specific gaps in knowledge concerning intakes of fat, sugar and salt and issues relating to access to an affordable healthy diet.
- There is a lack of local information on vitamin D deficiency in at risk groups and uptake of vitamin supplementation at local level suggesting a need for data collection

- More evidence to be obtained on local data/evaluation on interventions to assess & identify the local need

What should we do next?

10) Recommendations for consideration by commissioners

- Ensure that evidence based messages and the "Eatwell guide" are used to promote consistent messages concerning a nutritionally adequate diet, healthy eating and prevention of obesity, CVD and diabetes.
- Interventions to improve diet should prioritise low income groups who have been shown to have the poorest diet and the highest incidence of obesity
- Take forward the recommendations in the PHE Sugar reduction report in a strategic and coordinated way
- Continue to develop interventions that improve the nutritional knowledge and food preparation skills of priority groups
- Develop an implementation plan around obesity prevention in young children, ensuring integrated working across Children's Centres, Schools and other community settings
- Develop a better understanding of local beliefs and attitudes to food and nutrition in cultural groups at higher risk of diet related health conditions and use this to influence commissioning of interventions, to maximise behaviour change
- Raise awareness of lifestyle interventions at a lower BMI for priority BME groups to prevent Type 2 diabetes & stroke
- Influence diet in early years in particular schools through education and implementing recommended national & local council food policy.

- To work with take-away and other food outlets to improve the nutritional quality of food served.
- Use existing powers to regulate the opening times and number of take-away and other food outlets serving foods high in fat, sugar and salt in given areas and in particular near schools.
- Ensure all food procured by, and provided for, people working in this part of the public sector is in line with dietary recommendations made in the 'Eatwell guide'.
- Increased promotion of Healthy Start including vitamin supplements to both professionals and parents, particularly to those in target groups and those who do not access Children's Centres.
- Further partnership working to increase school meal uptake, whilst also evaluating and further developing initiatives to improve nutritional standards of packed lunches.
- To target 16 – 24 year olds as there are no specific schemes in place at present

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