

Healthy and Unhealthy Weight in Children in North Lincolnshire

Public Health Intelligence Factsheet January 2016

Key facts

- There are now 8 years' worth of robust NCMP trend data available at national level, and 7 years' at local level¹, to complement the national and regional Health Survey for England data on healthy and unhealthy weight amongst children.
- National data sources suggest a levelling off in the prevalence of obesity amongst 5-6 year olds and a slight, albeit statistically insignificant, rise in obesity amongst 10-11 year olds.
- In North Lincolnshire, 9.7% of 5-6 year olds who participated in the NCMP programme in 2014/15 (n = 162) were assessed as at risk of being obese. This compares with 10.5% in 2007/8 and with a national rate in 2014/15 of 9.1%.
- In other words, there has been no significant shift in obesity levels amongst 5-6 year olds in North Lincolnshire since 2008, and no statistically significant difference to the national average. In other words, the anticipated rise has been halted.
- However, between the age of 5 and 11 years levels of obesity more than double.
- In 2014/15 20.2% of 10-11 year olds who participated in the programme in North Lincolnshire, (n= 362) were assessed as obese. This compares with 18.8% in 2007/8, and a national figure in 2014/15 of 19.1%. Whilst this is
- For the second year running, North Lincolnshire had the fourth highest rate of obesity recorded amongst 10-11 year olds in the Yorkshire & Humber region in 2014/15.
- Nationally and locally, boys are more likely than girls to be assessed as obese, with larger gender differences in Year 6.
- National data also shows a strong social gradient in childhood obesity with rates of obesity at the age 5 years twice that for children attending schools in the most deprived 10% neighbourhoods compared with the least deprived 10%.
- This relationship with deprivation was not observed locally at 5 years of age. Even when data was pooled across 7 years, there was no statistically significant difference in levels of obesity between our richest and poorest reception year children.
- However, we did observe a relationship with deprivation at 11 years of age, with 22% of 11 years from the most deprived 10% neighbourhoods assessed as obese, compared with 16%

¹ Participation rates in the NCMP amongst North Lincolnshire Yr 6s in 2006/7 were too low to draw reliable comparisons in that year, i.e. were below 85%.

of 11 years from the least deprived 10%. This compares with national rates of 24.7% and 13.1% respectively.

- There was no relationship observed locally between deprivation and levels of overweight in either age group.
- Not could we observe any relationship with ethnicity, although national evidence suggests a higher prevalence of excess weight amongst the Black British population, and higher rates of underweight amongst Asian children.
- Participation in the NCMP programme is voluntary and has historically been higher amongst 5-6 year olds, than amongst 10-11 year olds. This trend continues although the difference between the two age groups is narrowing.
- In 2014/15 98.7% of North Lincolnshire 5-6 year olds participated in the programme, compared with 96% nationally. There continues to be a year on year improvement.
- Participation amongst North Lincolnshire's 10-11 year olds was 97.1%, a substantial improvement over previous years and above the national rate of 94%.
- The younger children are when they become obese, the longer they are likely to be living with this risk factor, and so the greater the risk of them developing weight related physical and mental health problems at a younger age and into adulthood.
- Hence the need for a continued focus on reducing unhealthy weight amongst children and young people and their families.
- Local and national evidence shows that children from the most deprived backgrounds are more likely to leave primary school overweight or obese, with rates almost twice that of the least deprived, contributing to inequalities in health across the life course.
- Treating obesity and its consequences is currently estimated to cost the NHS nationwide, £5.1bn every year. In North Lincolnshire it is estimated to cost £47 million.
- As one of the key risk factors for type 2 diabetes, it also contributes to the cost of treating diabetes which accounts for a national spend of £8.8 billion a year, almost 9% of the NHS budget.
- The wider costs of obesity to society are estimated to be around three times this amount. By contrast, the UK spends only around £638 million on obesity prevention programmes. Obesity. Mitigating or reversing the rising level of obesity in the population will therefore be a critical part of any strategy for the future sustainable provision of health care and managing public budgets.
- All of the international evidence suggests that obesity is a complex, systemic, multi-causal problem, rooted in the sedentary nature of modern life, more widely available and more

affordable food, as well as structural and environmental factors which set the context for physical activity.

- Reducing childhood obesity will therefore require more than education and information campaigns, to promote healthier eating, physical activity, and encourage more personal responsibility. Whilst these interventions are necessary, evidence suggests that adopting these approaches alone will not be sufficient. This makes it even more important to focus on prevention and the wider determinants of obesity.
- Interventions are required which normalise healthy behaviour and make healthier eating and physical activity easier. For example, currently only 21% boys and 16% girls aged 5-15 years in England meet government guidelines for physical activity, whilst recent national evidence suggests that the average primary school child consumes their own weight in sugar each year, of which the largest source is from the consumption of soft drinks. School based interventions will therefore play a key role, albeit in combination with other interventions.
- According to our own local primary school lifestyle survey, a quarter of 10-11 year olds report doing no regular physical activity outside school, whilst 1 in 10 reported that their main meal of the day was a take out.
- A recent review of national and international evidence suggests that what is required is a range of coordinated interventions, delivered strategically across the life course at national and local level, and at sufficient scale to make a difference, rather than focussing on a single approach. Locally, amongst other things this will include efforts to increase physical activity inside and outside school, normalise healthier eating, reduce access to high calorific food and drinks, as well as targeted programmes to reduce weight.

Data sources

- National Child Weight Measurement Programme (NCWMP), 2008/9, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14 & 2014/15.
- Health Survey for England, 2012, published in 2012 & 2013 published 2014.
- National Obesity Observatory Data briefings and Factsheets, 2010/11, 2011/12, 2012/13, 2013/14 & 2014/15.
- North Lincolnshire Adolescent Lifestyle Survey, 2007, 2010 & 2013, NHS North Lincolnshire & North Lincolnshire Council.
- North Lincolnshire (Pilot) Primary School Survey, 2013.

Contents

Page

Consequences of excess weight in childhood	5
National projections	5
NCMP data	5
How do we compare	6
Participation rates	7
Weight by gender 2014/15	8
Weight by ethnic group	10
Inequalities in excess weight	11
Locality differences in excess weight	14
Ward differences in excess weight	15
Risk factors	16
Costs of childhood obesity	22
Evidence of what works	23
What we are doing locally	25
What next	26
References	26

Consequences of excess weight

There is significant national and international research evidence on the negative impact of excess weight in childhood.

- Obese children are at increased risk of psychosocial problems, including reduced self-esteem and increased risk of depression and social isolation.
- Obese children are also at risk of becoming obese adults, reducing life expectancy by an average of 9 years through a greatly increased risk of heart disease, cancer, diabetes and high blood pressure.
- Maternal obesity significantly increases risk of foetal congenital anomaly, prematurity, stillbirth and neonatal death.

National projections

In 2007, national projections suggested an annual increase in levels of childhood obesity of 0.5% a year between 2007 and 2020 – an increase of 7% during that time frame.

Further projections published in 2009 suggested that the rate of growth in childhood obesity may be slower than previously thought, and that interventions to halt the rise may be taking effect. Although the researchers themselves are cautious to draw any firm conclusions on the reasons for this change and suggest that this downward trend is unlikely to be evenly distributed within the population. These more recent projections estimate that by 2020 30% of boys between 2-11 years of age will be overweight or obese, compared with 42% as previously projected. For girls of the same age the revised prediction is now 27% - down from the 48% which had been projected previously for that year.

Based on population projections, these revised predictions suggest that there will be approximately 6300 obese 2-11 year olds living in North Lincolnshire by 2020.

NCMP data

The National Child Measurement Programme (NCMP) has been running for almost eight years, recording the body mass index of children in Year R (age 4-5 years) and Year 6 (aged 10-11 years) across England. The survey measures the prevalence of 'underweight', 'healthy weight', 'overweight' and 'obese' children in state primary schools. Children who are overweight or obese are classified together as unhealthy weight. The programme is one of the largest of its kind in the world, with 1,141,859 children measured in 2014/15, or approximately 95% of the eligible population. This is an improvement on previous years, when participation rates were as low as 80% (2006/7).

The data are used at a national level to inform policy and locally to inform the planning and commissioning of services. The NCMP also provides local areas with an opportunity to raise public awareness of child obesity and to assist families to make healthy lifestyle changes through provision of a child's result to their parents. Central collation and analysis of the NCMP data has been coordinated by the Health and Social Care Information Centre (HSCIC) since 2006/07. Data

are collected locally by school nurses with the support and cooperation of schools, in line with guidance from the Department of Health Obesity and Food Policy branch.

Although the NCMP encompasses 5-6 year olds and 10-11 year olds only, and has been running for eight years, the recent levelling off of childhood obesity identified in the HSE data appears to be confirmed by the NCMP results, with little change detected in the levels of obesity amongst Reception Year children in the last six years, and some evidence of a rise in obesity amongst 10-11 year olds.

In 2014/15 an average of 9.5% of boys and 8.7% of girls² of Reception Year age (Year R) were recorded as obese³ across England. This compares with 10.7% and 9.0% amongst Year R boys and girls in 2006/7.

Table 1: National trends in Child weight (as measured by the NCMP) 2006-2014

England	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Reception (aged 4-5 years)									
Overweight	13.0%	13.0%	13.2%	13.3%	13.2%	13.1%	13.0%	13.1%	12.8%
Obese	9.9%	9.6%	9.6%	9.8%	9.4%	9.5%	9.3%	9.5%	9.1%
Year 6 (aged 10-11 years)									
Over weight	14.2%	14.3%	14.3%	14.6%	14.4%	14.7%	14.4%	14.4%	14.2%
Obese	17.5%	18.3%	18.3%	18.7%	19.0%	19.2%	18.9%	19.1%	19.1%

Source: National Child Weight Measurement Programme, 2014/15

How do we compare?

Locally the trend is that levels of obesity have remained relatively stable. Data are not presented for 2006/7 due to poorer than average take up amongst 10-11 year olds in that year in North Lincolnshire.

Table 2: Local trends in Child weight (as measured by the NCMP) 2007-2015

North Lincolnshire	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Reception (aged 5-6 years)								
Overweight	14.0%	11.6%	10.2%	13.8%	15.8%	15.1%	14.4%	14.5%
Obese	10.3%	7.6%	8.3%	10.4%	8.0%	10.0%	9.7%	8.6%
Excess weight	24.3%	19.2%	18.5%	24.2%	23.8%	25.1%	24.1%	23.1%
Year 6 (aged 10-11 years)								
Overweight	13.4%	13.2%	13.7%	14.6%	15.8%	13.3%	14.3%	13.6%
Obese	18.8%	18.5%	18.6%	17.4%	20.2%	20.0%	20.7%	20.2%
Excess weight	22.2%	31.7%	32.3%	32%	36%	33.3%	35%	33.8%

²² Obesity rates by gender are calculated from data provided by NLaG 2015 which differs slightly from the National rate (national -9.7%, local calculation 9.9%)

³ Classified as obese according to the British 1990 population monitoring definition of obesity (\geq 95th centile) (Information Centre 2009/10).

Source: National Child Weight Measurement Programme, 2014/15

In 2014/15 a total of 1,882 children in Year R and 1,793 children in Year 6 participated in the NCMP in North Lincolnshire. Of these children, 76.3% in Year R and 65.8% in Year 6 were a healthy weight, 8.6% in Yr R (n = 162), and 20.2% in Year 6 (n= 362), were obese.

Table 3: Comparative NCMP data for 2014/15

North Lincolnshire 2014/15	Under weight	Overweight	Obese	Total excess weight	Participation rate
Year R	0.7%	14.5%	8.6%	23.1%	98.7%
Year 6	1.0%	13.6%	20.2%	33.8%	97.1%
North Lincolnshire 2013/14	Under weight	Overweight	Obese	Total excess weight	Participation rate
Year R	0.4%	14.4%	9.7%	24.1%	98.0%
Year 6	0.9%	14.3%	20.7%	35.0%	96.9%
Yorks & Humber average 2014/15	Under weight	Overweight	Obese	Total excess weight	Participation rate
Year R	0.9%	12.7%	8.8%	21.5%	94.5%
Year 6	1.4%	14.1%	19.2%	33.3%	93.4%
England average 2014/15	Under weight	Overweight	Obese	Total excess weight	Participation rate
Year R	1.0%	12.8%	9.1%	21.9%	93.8%
Year 6	1.4%	14.1%	19.1%	33.2%	93.6%

Source: National Child Weight Measurement Programme, 2013/14 & 2014/5

Participation rates

National and local trends

Nationally, participation in the programme has been increasing year on year, rising from an average of 80% in 2006/7 to 97% in 2013/14, with slightly higher participation rates amongst Reception Year children compared with those in Year 6.

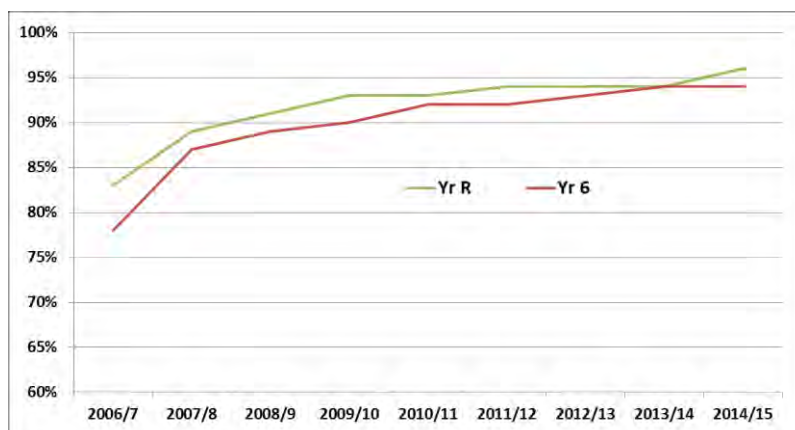
Table 4: Trends in national NCMP participation

	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Reception	83.2%	89.0%	91.2%	92.9%	93.4%	94.2%	94.0%	93.8%	96%
Year 6	77.9%	87.0%	89.1%	89.9%	91.8%	92.4%	92.7%	93.6%	94%

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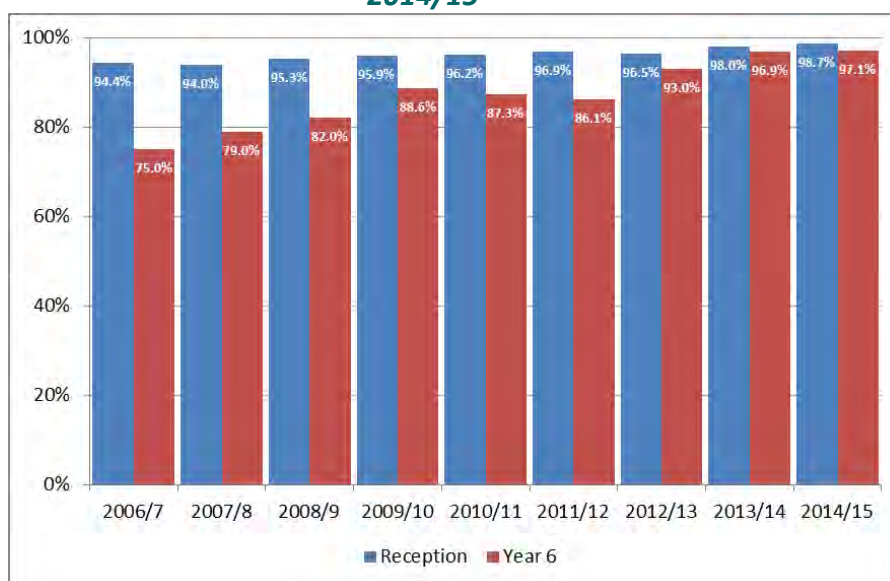
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Figure 1: National trends in participation in NCMP programme England, 2006/7 to 2014/15



Historically participation in the programme amongst Year R pupils in North Lincolnshire has been significantly above that of children in Year 6. However, this gap has been narrowing gradually and currently the difference is not statistically significant.

Figure 2: Trends in North Lincolnshire participation rates in NCMP programme 2007/8 to 2014/15



Source: Information Centre for Health and Social Care

Gender

Nationally and locally, boys are more likely than girls to be assessed as obese, with larger gender differences in Year 6, although in North Lincolnshire these differences are not statistically significant. Whilst boys are more likely to be obese than girls in Year 6 boys show a slight downwards trend whilst girls show no trend. Both boys and girls in Year 6 show an upward trajectory, both for risk of obesity and for all unhealthy weight.

Although we have no data to support this, it is possible that this difference is due to lower rates of participation in the programme amongst girls than boys, especially in Year 6, although due to the higher uptake rates in the last few years this is less likely to be the case.

Figure 3: Healthy and unhealthy weight amongst children in Year 6 in England, by gender 2014/15

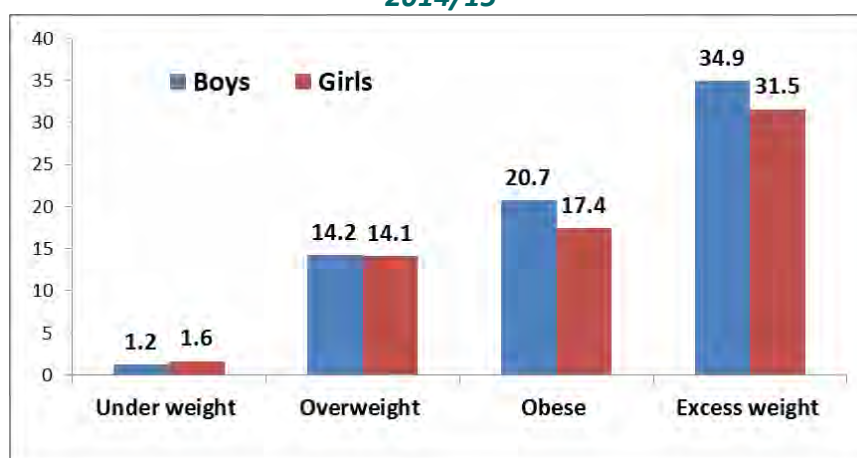
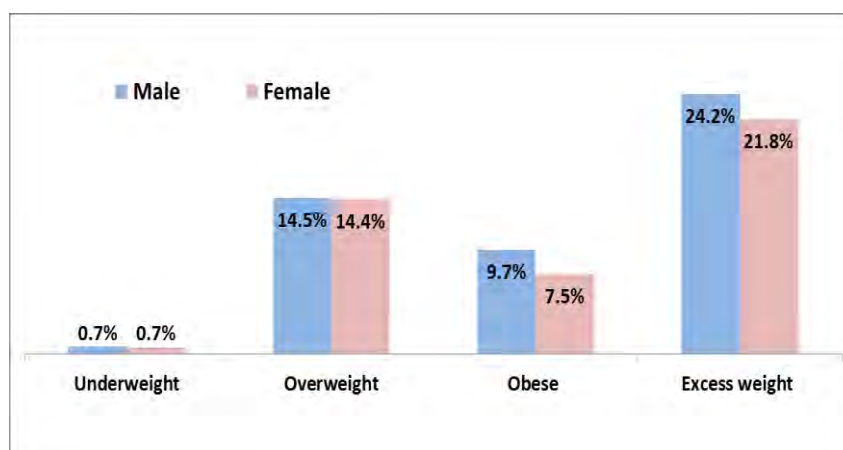


Figure 4: Prevalence of unhealthy weight in North Lincolnshire in Year R by gender, 2014/15



Source: North Lincolnshire Council, 2014/15

Figure 5: Prevalence of healthy and unhealthy weight in North Lincolnshire in Year 6 by gender, 2014/15



Source: North Lincolnshire Council, 2014/15

Ethnicity

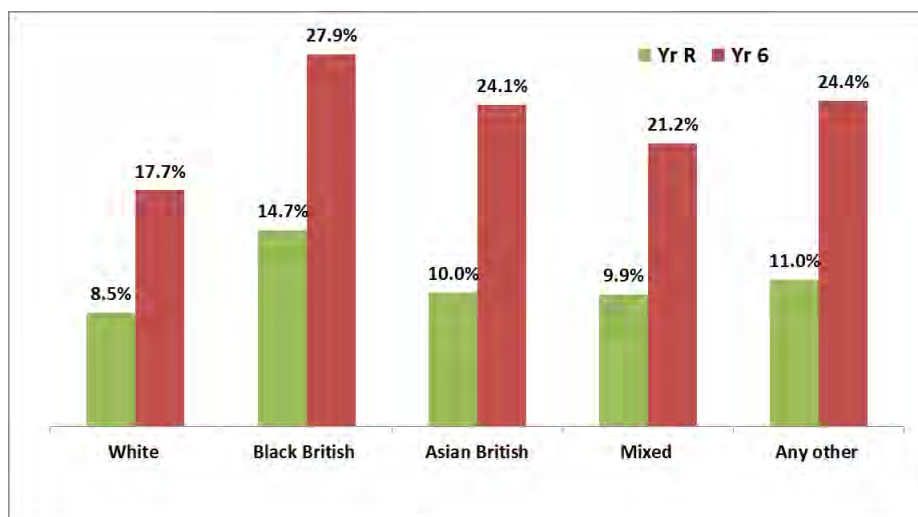
Since 2007/08, collection of the ethnic origin of participating children has been a mandatory requirement. PCTs (and now LAs) were able to supply ethnicity codes using either the NHS or the Department for Education (DfE) classification codes or those used within the Rio and System One child health systems. These codes were grouped into seven categories for national analysis. The seven ethnic categories used for analysis have been derived by combining the following NHS ethnic categories:

- **White:** White British, White Irish, White Any other White background.
- **Mixed:** Mixed White and Black Caribbean, Mixed White and Black African, Mixed White and Asian, Mixed Any other mixed background.
- **Asian or Asian British:** Asian and Asian British Indian, Asian and Asian British Pakistani, Asian and Asian British Bangladeshi, Asian and Asian British Any other Asian background.
- **Black or Black British:** Black or Black British Caribbean, Black or Black British African, Black or Black British Any other Black background.
- **Chinese:** Chinese.
- **Any other ethnic group:** Any other ethnic group.
- **Unknown:** Not Stated or data not returned by LA.

Nationally, the highest prevalence of obesity in these two age groups was amongst Black or Black British children. Underweight prevalence was significantly higher in the 'Asian or Asian British' group.

There are known associations between ethnicity and area deprivation. Deprived urban areas in England tend to also have a higher proportion of individuals from non-White ethnic groups, so it is likely that there are confounding factors which affect obesity prevalence by ethnic group.

Figure 6: Prevalence of obesity in Year R & 6 children by ethnic group, 2014/15 England



Due to local data issues in 2014/15 there was no local analysis of weight by ethnicity carried out. In the past there has been no local evidence of a relationship between ethnicity and healthy or unhealthy weight amongst children in North Lincolnshire. However the numbers of BME pupils in each Year group are still too small to draw reliable comparisons.

Inequalities in excess weight

Nationally, all of the data suggest a strong positive relationship between deprivation and obesity prevalence for children aged 2- 15 and for those in Year R and Year 6. Amongst Reception year children obesity prevalence is twice as high amongst children attending schools in the most deprived 10% neighbourhoods, compared with those attending schools in areas in the least deprived 10%, (12.0% and 6.6% respectively). For children in Year 6 the figures were 24.7% and 13.1% respectively.

Figure 7: Prevalence of obesity in Year R by deprivation decile of child's neighbourhood – where 1 = least deprived 10% and 10 = most deprived 10%, 2014/15 England

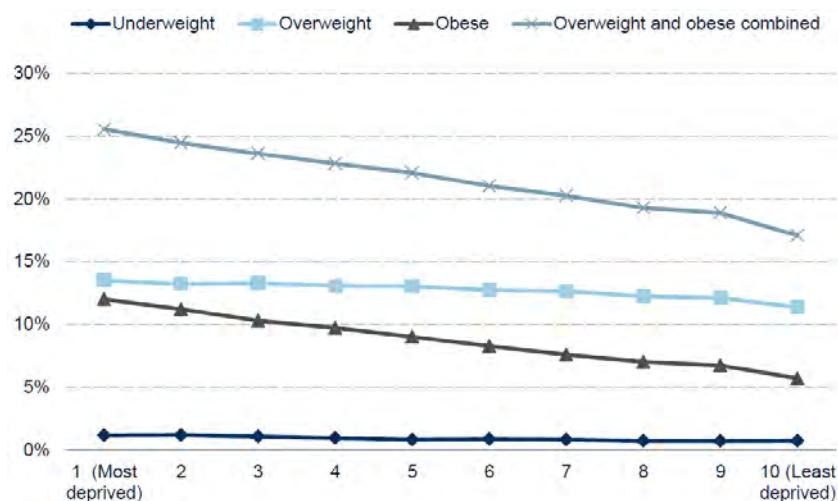
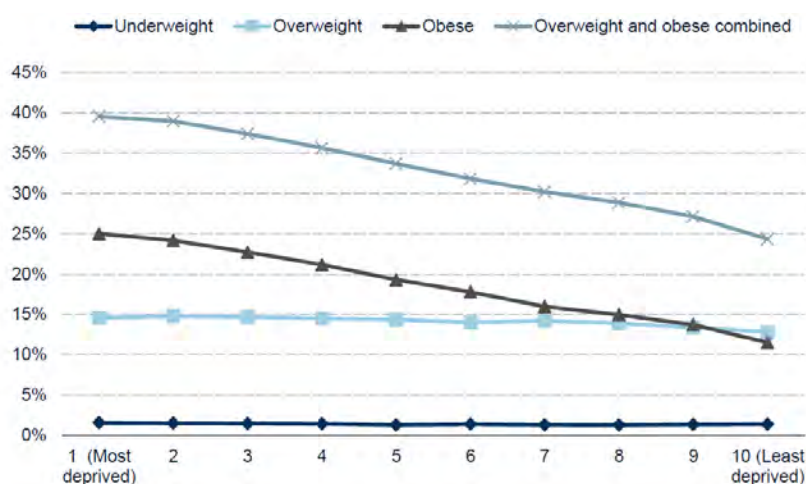
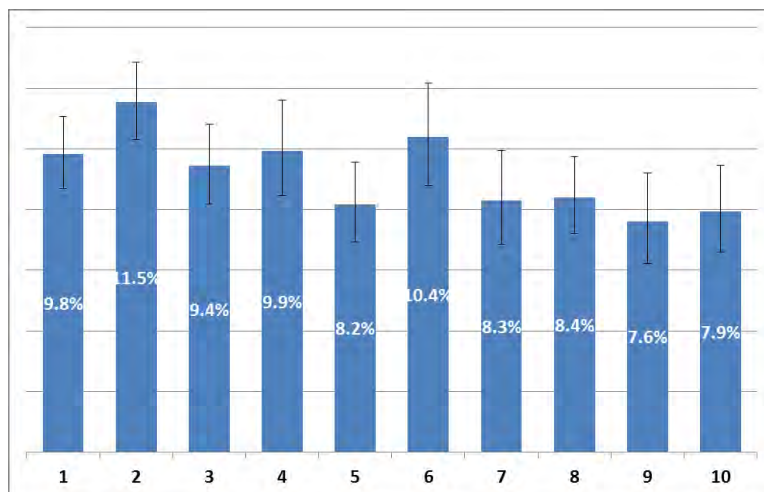


Figure 8: Prevalence of obesity in Year 6 by deprivation decile – where 1 = least deprived 10% and 10 = most deprived 10% neighbourhoods, 2014/15



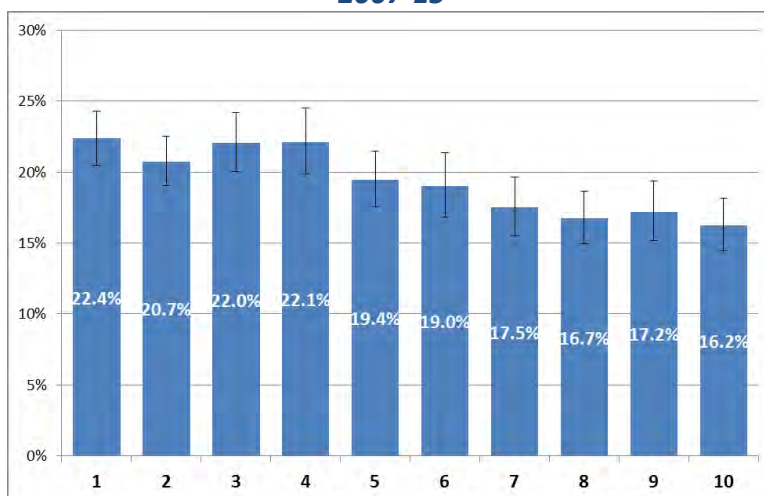
In North Lincolnshire the relationship appears to be far less pronounced. Even pooled local data for the years 2007-15 show no significant difference in excess weight in Year R between decile 1 and 10, although we did observe a positive relationship amongst Year 6 pupils, with the highest rate observed amongst the most deprived 10%.

Figure 9: Prevalence of obesity/ overweight by deprivation deciles in North Lincolnshire, Year R , pooled data for 2007-15 (Where 1 = most deprived 10%)



Source: NCMP data, NHS North Lincolnshire, 2014/15

Figure 10: Prevalence of obesity/ overweight by deprivation deciles in North Lincolnshire, Year 6, 2007-15



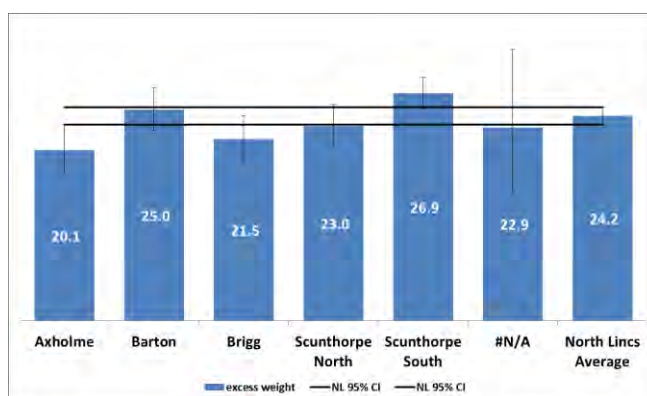
Source: NCMP data, NHS North Lincolnshire, 2014/15

Locality Differences

Nationally, children living in rural areas are less likely to be overweight or obese, compared with children living in urban areas, with low income/deprivation believed to be the key mediating factors in urban areas. This appears to be borne out locally in the NCMP findings by each of the localities.

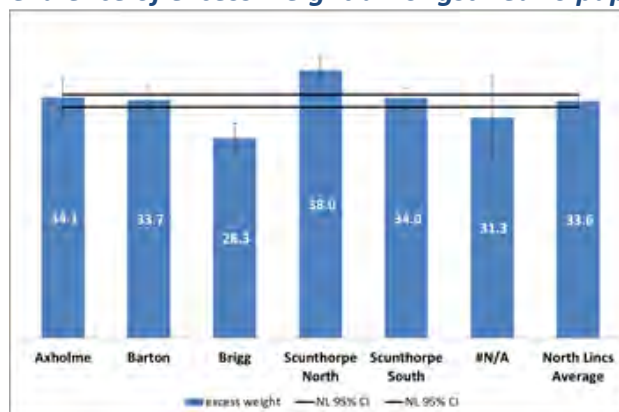
The graphs below show the percentage of children at risk of being overweight or obese (excess weight) by locality. The highest levels of excess weight in year R were in Scunthorpe South and the lowest in the Axholme area. In Year 6 the highest proportions of excess weight were in Scunthorpe North and the lowest in Brigg locality.

Figure 11: Prevalence of 'excess weight' (ie overweight and obese) by locality for Year R pupils in North Lincolnshire pooled data for 2007-15



Source: NCMP data, NLC PHIT North Lincolnshire, 2007/8 – 2014/15

Figure 12: Prevalence of excess weight amongst Year 6 pupils by locality



Source: NCMP data, NLC PHIT North Lincolnshire, 2007/8 – 2014/15

Examined by ward, those neighbourhoods with the highest rates of excess weight across the pooled years 2007-15 were, in reception year, in Burringham and Gunness Barton and Frodingham wards. In Year 6 the highest rates were observed in Town, Axholme North, Frodingham Crosby and Park, and Ferry wards. In Axholme South ward, rates of excess weight were significantly below the

local and national average for both age groups, and were half that in Brumby and Burringham and Gunness wards. Amongst 11 year olds rates of excess weight were highest in Town ward were significantly above the national and local average and were more than 10% higher than in Brigg ward.

Figure 13: Levels of excess weight amongst Year R children by ward 2007-15

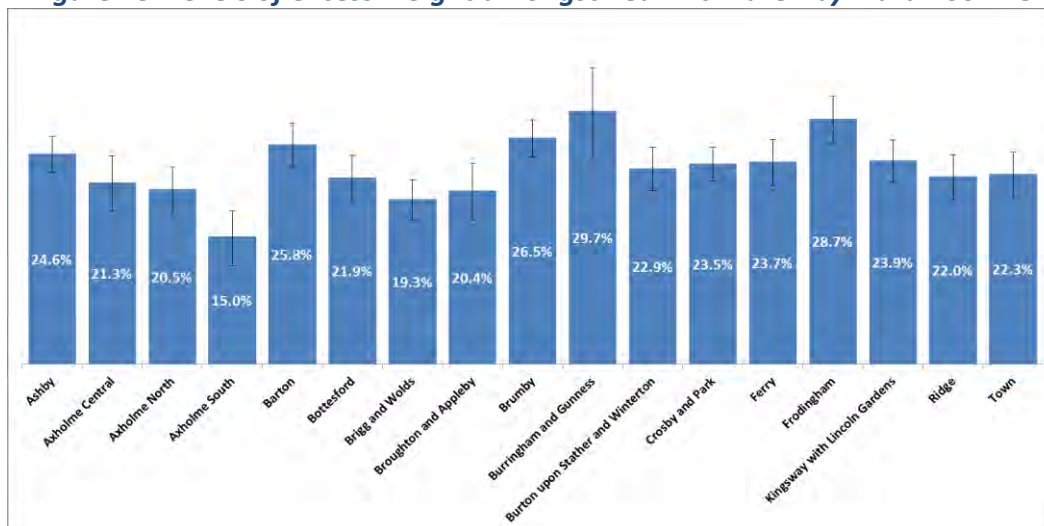
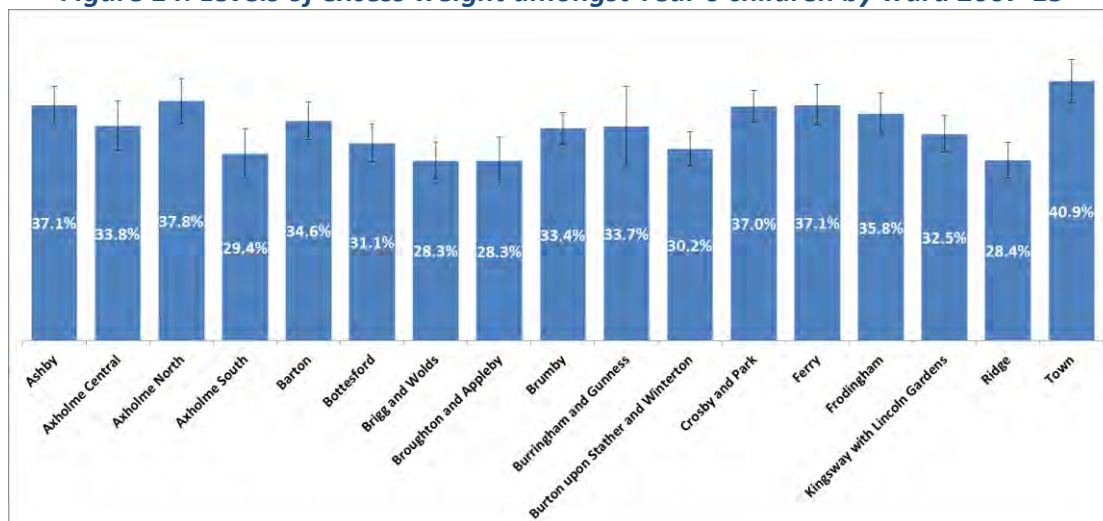


Figure 14: Levels of excess weight amongst Year 6 children by ward 2007-15



Risk Factors

Some common risk factors for obesity in childhood are modifiable, others are not. The most common modifiable factor is family lifestyle, including high levels of sedentary activities such as TV viewing; low levels of physical activity; parental inactivity and overweight; and high consumption of fat, carbohydrates, and sweetened drinks.

Social Segmentation

Customer insight research commissioned by the Department of Health suggests that the relationship between income, gender and risk of childhood obesity is complex. A national report commissioned by the Department of Health, identified the following risk factors associated with different family 'types' or clusters, <http://www.chimat.org.uk/resource/item.aspx?RID=60798>.

Family Types	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
Description	Struggling parents, who lack confidence, knowledge, time and money	Young parents who lack knowledge and parenting skills to implement healthy lifestyles	Affluent families who indulge in food	Already living a healthy lifestyle	Strong family values and parenting skills but need to make changes to diet and activity	Plenty of exercise but too many bad foods
Family diet	Seek convenience, eat for comfort, struggle to cook healthily from scratch.	Children fussy eaters, rely on convenience foods.	Enjoy food, heavy snackers, parents watching weight.	Strong interest in healthy diet.	Strong parental control but diet rich in energy-dense foods and portion size an issue.	Diet includes both healthy and unhealthy foods.
Physical activity	Seen as costly, time-consuming and not enjoyable. High levels of sedentary behaviour.	Parents perceive children to be active.	Believe family is active, no barriers to child's activity except confidence.	Family active although believe children not confident doing exercise.	Know they need to do more: time, money, self-confidence seen as barriers.	Activity levels are high, particularly among mothers.
Weight status	Mothers obese and overweight.	Families obese and overweight. Fail to recognise children's weight status.	Families obese and overweight. Low recognition of children's weight status.	Below average levels of obesity and overweight.	Parental obesity levels above average, children below.	Low family obesity
% children obese	15.8%	23.8%	24.4%	13.7%	14.8%	14.1%
Demographic	Low income, likely to be lone parents	Young parents on low income	Affluent parents of all ages	Affluent older parents	Range of parental ages	Average incomes and younger mothers
Intent to change	High - but fear of being judged/lack of confidence	Low due to lack of knowledge but willing to accept help	Low and likely to deny problems exist	Low but already leading a healthy lifestyle	Low but significant intent to change on physical activity	Highest amongst the clusters for both diet and activity
Potential task	Build confidence, increase knowledge and provide cheap convenient diet solutions.	Increase understanding of risks of current lifestyle and develop parenting skills.	Encourage recognition of problem and awareness of true exercise and snacking levels.	Learn from successful techniques used by cluster.	Focus on increasing activity levels and educate on portion size.	Focus on providing cheap, convenient healthy high-energy foods to fuel active lifestyle.

As the table above shows, according to this model, children in Family Cluster Types 1, 2 and 3 are at greatest risk of obesity. The family type associated with the greatest risk of childhood obesity (Cluster 3) is in fact relatively affluent, with parents who enjoy indulging in food and who lead very sedentary lifestyles. This group may resist the notion that they and/or their children have a weight problem and so may not be receptive to change.

For low income, lone parent families in Cluster 2, lack of knowledge and personal and material resources to effect behaviour change may prevent them from making healthier choices for themselves and their children. This research suggests a range of approaches will be required to reduce overweight and obesity in children, with each cluster potentially requiring a different targeted intervention.

Parental weight

In families where both parents are overweight or obese, children are six times as likely to be so too, compared to children with parents of a healthy weight. Nationally, only three per cent of overweight or obese children live in families where neither parents is overweight or obese.

Currently, both recorded and estimated levels of adult excess weight in North Lincolnshire are above the national average, with an estimated 69.6% of adults obese or overweight in 2012-14, compared with 64.6% nationally. The risk of childhood obesity is therefore likely to be higher locally, and as adult rates increase, so does the risk amongst children. Breaking this cycle will require a range of approaches, including attention to preventing excessive weight gain in early childhood, amongst young parents and during pregnancy. Hence the need for a family and community based approach to healthy weight management.

Obesity in pregnancy

Nationally it is estimated that almost half of all women of childbearing age are either overweight, with a body mass index of 25-29.9, or obese, with a BMI of 30 or above, with 16% of all women who become pregnant being obese (NICE, 2010). In North Lincolnshire, the levels are likely to be higher.

Table 5: Weight at first trimester in North Lincolnshire 2014/15

Obesity	% of pregnant women in England	% of pregnant women in North Lincolnshire
Overweight BMI 25-29.9	N/A	28%
All obese women BMI >30	15.6%	22%
Class 1 BMI 30-34.9	10.7%	15%
Class 2 BMI 35-39.9	2.9%	6%
Class 3 BMI 40- 49.9	1.8%	2%
Super morbid BMI >50	0.2%	0.3%

Source: Maternal obesity in the UK2010 CMACE, www.cmace.org.uk NLAG, 2014/15

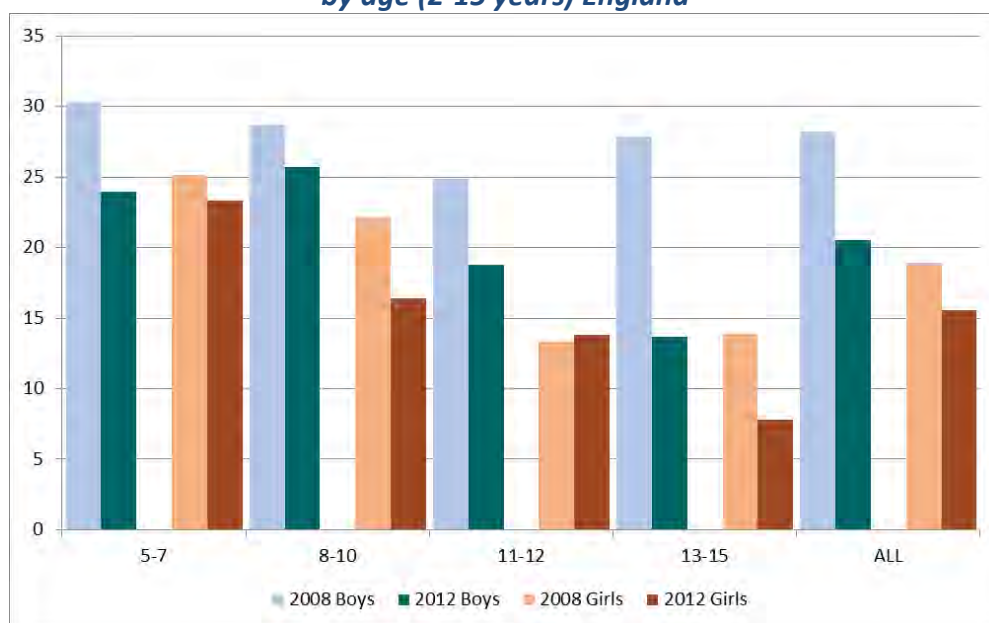
In the 12 month period April – March 2014/15, half of pregnant women in North Lincolnshire were recorded as either overweight or obese at the time of first booking. More than 1 in 4, 28%, were assessed as overweight, 22% obese i.e. had a BMI > 30, and 2.3%, were morbidly obese i.e. had a BMI >40, at the time of first booking. This suggests a higher need for intensive and intermediate care amongst pregnant women in North Lincolnshire and has significant implications for maternal infant and population health.

Physical activity

Nationally in 2012, more boys than girls aged 2-15 years meet the national Chief Medical Officer's recommendations for physical activity, with almost 1 in 4 boys (26%) achieving at least one hour of moderate activity every day, compared with 16% of girls. Figures have fallen since the last measurements were recorded in 2008.

Physical activity tends to decrease with age, especially between 10-15 years, with very low levels for girls aged 15 and older.

Figure 15: Proportion of children meeting Government recommendations for physical activity by age (2-15 years) England



Source: HSCIC

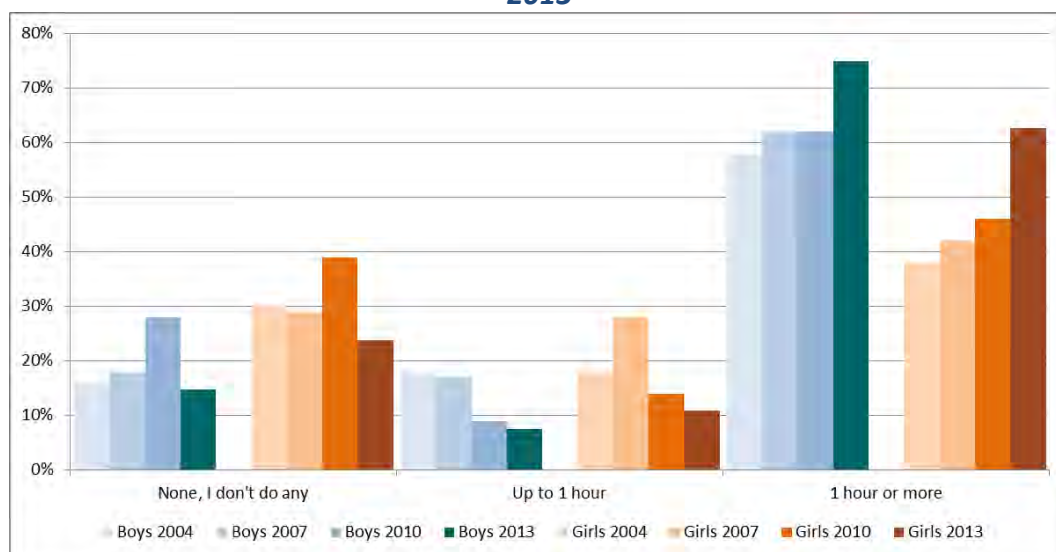
Comparable information is not available at local level, although the Tellus4 survey for 9-14 year olds (2009 and 2010), suggested that levels of physical activity amongst school aged children in North Lincolnshire were no different to the national average, (Tellus Surveys, DFE, 2010).

For some young people, healthy physical activity comes from participating in formal exercise in school such as PE, or by playing sport outside school. For others it might happen more informally through walking, cycling, and running or through active leisure/play.

In North Lincolnshire, almost all school aged children take part in some form of sport or physical activity during school time, usually for up to two hours a week. The amount of time spent engaging in sport outside school is more variable and has changed significantly since 2004.

In 2013/14 boys tended to spend more time on sports activities than girls. 75% of boys said they spent one or more hours a week on sport outside school, compared with 63% of girls. In contrast more than a quarter of girls (24%), and more than a sixth of boys (15%) said they did no sport at all outside school.

Figure 16:
Hours spent on sport outside school each week in North Lincolnshire, 11-15 year olds 2004 – 2013



Source: North Lincolnshire Adolescent Lifestyle Survey report, 2013

	None, I don't do any	Up to 1 hour	1 hour or more
Boys 2004	16%	18%	58%
Boys 2007	18%	17%	62%
Boys 2010	28%	9%	62%
Boys 2013	15%	7%	75%
Girls 2004	30%	18%	38%
Girls 2007	29%	28%	42%
Girls 2010	39%	14%	46%
Girls 2013	24%	11%	63%

Source: North Lincolnshire Adolescent Lifestyle Survey report, 2013

The North Lincolnshire Adolescent Lifestyle Surveys (2007, 2010, 2013) also revealed that more than half of young people aged 11-15 years were unhappy about their weight. Teenage girls in particular had a poor body image, with 76% reporting being unhappy about their weight, compared with 50% boys.

In spite of these concerns, teenage girls were less likely than boys to engage in physical activity outside school and appeared less interested in the range of sports on offer. Whilst this issue is not unique to North Lincolnshire, we may need to explore ways of engaging more girls and young women in healthy active lives and sport.

Diet

The National Diet and Nutrition Survey of Young People aged 4-18 years provide comprehensive information on the dietary habits and nutritional status of the population. Overall, the findings were that children's diets exceeded national recommendations for saturated fat, non-milk extrinsic sugars and salt.

According to national survey data, around 1 in 5 children aged 5-15 years of age met the five a day target for fruit and vegetables in 2008, whilst the average child reportedly eats three portions a day. This is almost double what it was in 2001. In North Lincolnshire, the TellUs 4 Survey results suggest the local comparative figure is close to this national average at 18%. However, these are self reported data and may overestimate the actual average daily intake of fruit and vegetables.

According to this survey, around 40% of primary school pupils nationally have catered school lunches. This compares with 46% in North Lincolnshire. These figures will have risen since September 2014 following the roll out of free school meals to all primary school children.

The lowest take up of school lunches is in secondary schools. In North Lincolnshire 11-15 year olds are less likely than their national peers to take up school dinners, 33%, compared with 27% nationally.

Mode of travel

Data on modes of travel to work and school suggest that travel that requires less energy expenditure are more common in North Lincolnshire, and over shorter journeys than elsewhere, especially in our rural areas, where children are more likely to be transported to school by bus or car.

Fast food outlets

Evidence from the USA and Europe have identified higher rates of obesity in communities with high concentrations of fast food outlets. There is also a strong correlation between density of food outlets and deprivation.

In 2010, there were an estimated 143 fast food outlets in North Lincolnshire, giving a crude rate of 89 per 100,000 population, compared with 77.9 nationally (ONS, 2010). Whilst this was less than neighbouring North East Lincolnshire, where rates were as high as 103 per 100,000, they exceeded that of Hull and the East Riding of Yorkshire, at 49 and 56 per 100,000, respectively.

Other factors related to the development of childhood obesity

Infant feeding and childhood obesity

The determinants of childhood overweight and obesity are complex, but infant feeding and the early diet are important contributing factors. The weaning period, in particular, is a time during which children are nutritionally vulnerable, and where life-long eating habits may be established. International research evidence suggests that the younger infants are at their first formula feed

and at introduction of solid and finger foods, the more likely they are to be an unhealthy weight by the age of 2. Whilst breastfeeding initiation rates are improving, continuation rates are well below national rates and have not changed much in the last few years, suggesting a greater local need for clear dietary advice for parents on weaning and complementary feeding.

TV Viewing and social media

National research suggests that increased TV viewing and time spent on social media among children and young people is associated with a raised likelihood of being overweight. This results from a combination of unhealthy dietary habits, sedentary behaviour, and exposure to TV advertising. It also appears that excessive TV viewing and use of social media among adolescents may lead to poor dietary patterns in later years. Reducing time spent engaged in these activities can lead to decreases in BMI.

Costs of childhood obesity

Nationally, the cost of obesity related illness is estimated to cost the NHS £5.1 billion a year. The estimated annual cost of obesity to the NHS in North Lincolnshire is more than £47million.

The indirect costs to the economy are likely to be at least twice as high as this, with the social costs, in terms of the impact on children's emotional well-being, likely to be higher still. Employers bear a major cost. Estimates from the US suggest that more than a quarter of the total cost of obesity may fall on employers, in the form of absentee workers, decreased productivity and short-term disability.

Obesity also impacts on employment opportunities and life chances in general. It has been estimated that lost earnings attributable to obesity related ill health amount to £2.35bn – £2.6bn a year in the UK. Of this, around £1.05bn – £1.15bn a year is due to lost earnings as a result of premature mortality attributable to obesity; and £1.3bn – £1.45bn is due to lost earnings from certified sickness (around 15.5–16 million days of sickness directly attributable to obesity nationally). Overweight and obesity are therefore a threat to the economic growth on which the country's future prosperity and wellbeing depend.

Evidence of what works

The following NICE guidance have recommendations relevant to the prevention and treatment of obesity:

CG43	Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children (Updated to CG189)	2006
PH02	Four commonly used methods to increase physical activity: brief interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling.	2006
PH08	Physical Activity and the Environment.	2008
PH11	Maternal and child nutrition.	2008
PH13	Promoting Physical Activity in the workplace	2008
PH17	Promoting physical activity, active play and sport for pre-school and school-age children and young people in family, pre-school, school and community settings.	2009
PH25	Prevention of cardiovascular disease.	2008
PH27	Weight management before, during and after pregnancy.	2010
PH35	Prevention of diabetes.	2011
PH47	Managing overweight and obesity among children and young people: lifestyle weight management services	2013
CG189	Obesity: identification, assessment and management of overweight and obesity in children, young people and adults	2014
PH54	Physical activity: exercise referral schemes	2014
NG7	Preventing excess weight gain	2015

All of the evidence suggests that there is no single cause of childhood and adult obesity, or a single solution. National research evidence suggests that any local interventions to increase healthy weight should be

- Multi faceted to reflect the complex interplay of different environmental, biological and social determinants of obesity.
- Based on a strong theoretical framework.
- Tailored to the target population.
- Developed in consultation with the general population.

This is supported by a recent UK Academy of Royal Colleges of Medical Colleges report on obesity, its causes and effective responses. This report made the following 10 key national recommendations.

Action by the healthcare professions

1. **Education and training programmes for healthcare professionals:** Royal Colleges, Faculties and other professional clinical bodies should promote targeted education and training programmes within the next two years for healthcare professionals in both primary and secondary care to ensure 'making every contact count' becomes a reality, particularly for those who have most influence on patient behaviour.
2. **Weight management services:** The departments of health in the four nations should together invest at least £100m in each of the next three financial years to extend and increase provision of weight management services across the country, to mirror the provision of smoking cessation services. This should include both early intervention programmes and, greater provision for severe and complicated obesity, including bariatric surgery. Adjustments could then be made to the Quality and Outcomes Framework, providing incentives for GPs to refer patients to such services.
3. **Nutritional standards for food in hospitals:** Food-based standards in line with those put in place for schools in England in 2006 should be introduced in all UK hospitals in the next 18 months. Commissioners should work with a delivery agent similar to the Children's Food Trust to put these measures into place.
4. **Increasing support for new parents:** The current expansion of the health visitor workforce in England should be accompanied by 'skilling up' the wider early years workforce to deliver basic food preparation skills to new mothers and fathers, and to guide appropriate food choices which will ensure nutritionally balanced meals, encourage breastfeeding and use existing guidance in the Personal Child Health Record as a tool to support this.

The obesogenic environment

5. **Nutritional standards in schools:** The existing mandatory food- and nutrient-based standards in England should be applied to all schools including free schools and academies. This should be accompanied by a new statutory requirement on all schools to provide food skills, including cooking and growing – alongside a sound theoretical understanding of the long-term effects of food on health and the environment from the 2014/15 academic year.
6. **Fast food outlets:** Public Health England should develop formal recommendations on reducing the density of fast food outlets.
7. **Junk food advertising:** A ban on advertising of foods high in saturated fats, sugar and salt before 9pm, and an agreement from commercial broadcasters that they will not allow these foods to be advertised on internet 'on-demand' services.

Making the healthy choice the easy choice

- 8. Sugary drinks tax:** For an initial one year, a duty should be piloted on all sugary soft drinks, increasing the price by at least 20%. This would be an experimental measure, looking at price elasticity, substitution effects, and to what extent it impacts upon consumption patterns and producer/retailer responses.
- 9. Food labelling:** Major food manufacturers and supermarkets should agree in the next year a unified system of traffic light food labelling (to be based on percentage of calories for men, women, children and adolescents) and visible calorie indicators for restaurants, especially fast food outlets.
- 10. The built environment:** Public Health England should provide guidance to Directors of Public Health in working with Local Authorities to encourage active travel and protect or increase green spaces to make the healthy option the easy option. In all four nations, local authority planning decisions should be subject to a mandatory health impact assessment, which would evaluate their potential impact upon the populations' health.

What we are doing locally

- Commissioned a 3 year (2014-2017) local childhood weight management service – Get Going. The service provides family centred support to children (aged 4-16yrs) who are assessed as being above a healthy weight.
- As part of the 'Get Going' programme, childhood obesity prevention activities are delivered across primary school settings in North Lincolnshire, including the promotion of healthy lifestyles, active travel, active play and healthy eating.
- Wide scale delivery of Healthy Chat training (part of Making Every Contact Count) across all three directorates of North Lincolnshire Council.
- Cook4Life a family based cook and eat project (2 years), started June 2015 in North Lincolnshire. Delivered by the Health Trainer service, this provides adults, children and families with increased knowledge and skills to prepare and cook healthier food.
- Obesity awareness training is delivered to key primary school stakeholders (i.e. lunchtime supervisors, catering staff, pastoral teams) to raise the profile of child healthy weight, the importance of healthy eating and physical activity.
- Production of Supplementary Planning Guidance for Health, which will ensure that developers consider a range of issues affecting health at the planning stage. The Guidance should be formally adopted in 2016.

What next?

- Continue the delivery of MECC/Healthy Chat training across North Lincolnshire Council, including front-line staff working with families and children.
- Support the adoption and implementation of the school food plan, including the provision of free school meals for all Key Stage 1.

- Commitment to establish North Lincolnshire Obesity Referral routes which are identifiable and understood by participants or patients, providers and professionals.
- Commit to the development of the North Lincolnshire Food Pledge; a programme based on the Sustainable Food Cities approach through the development of a cross-sector partnership of local public, private and voluntary/community sector organisations, who are collectively committed to ensuring healthy and sustainable food is a key characteristic of North Lincolnshire.

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