National Child Measurement Programme: England, 2010/11 school year

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We would like to thank all those who have contributed to the production of this report including:

Contents

Summary

This report summarises the key findings from the government's National Child Measurement Programme (NCMP) for England, 2010/11 school year. The report provides high-level analysis of the prevalence of 'underweight', 'healthy weight', 'overweight', 'obese' and 'combined overweight and obese'[1] children, in Reception (aged 4–5 years) and Year 6 (aged 10–11 years), measured in state schools in England in the school year 2010/11. The report contains comparisons with 2009/10 and where appropriate, comparisons have also been made with the results from earlier years.

Additional analysis will be produced by the National Obesity Observatory (NOO) (expected to be published in Spring 2012) and the anonymised national dataset will be made available to Public Health Observatories (PHOs) to allow regional and local analysis of the data.

In recognition of the effect of natural year to year variation, confidence intervals are included around the percentages in the tables and charts in this report where possible and should be considered when interpreting results. A confidence interval gives an indication of the sampling error around the estimate calculated and takes into consideration the sample sizes and the degree of variation in the data. They are used to determine whether any differences in prevalence figures are likely to be real or due to sampling variation.

As the sample sizes for NCMP are large (876,416 in 2006/07, 973,073 in 2007/08, 1,003,849 in 2008/09, 1,026,366 in 2009/10 and 1,036,608 in 2010/11) the 95% confidence intervals for prevalence estimates at national level are very narrow (indicating a small margin of potential error). The comparisons that feature in this report have all been tested at a 95% significance level. Both comparisons of prevalence figures relating to groups within the 2010/11 dataset, and comparisons with prevalence figures of earlier years, have only been highlighted where the difference was determined to be statistically significant. Where there was no significant difference between 2 proportions, the term 'similar' has been used. Further details are provided in Annex 3.

When examining prevalence rates it is also important to consider how the participation rate might affect the calculated prevalence figures. Analyses performed

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[1] Prevalence rates calculated using the age and sex-specific UK National Body Mass Index (BMI) centile classification. A large representative sample of 37,700 children was constructed by combining data from 17 separate surveys. The sample was rebased to 1990 levels and the data were then used to express BMI as a centile based on the BMI distribution, adjusted for skewness, age and sex using Cole's LMS method - *Growth monitoring with the British 1990 growth reference*. Cole *Arch Dis Child.*1997; 76: 47-49.

- 'underweight' is defined as less than or equal to the 2nd centile;
- 'overweight' is defined as greater than or equal to the 85th centile but less than the 95th centile;
- 'obese' is defined as greater or equal to the 95th centile;
- 'overweight and obese combined' is defined as greater than or equal to the 85th centile.

in earlier years concluded that a lower participation rate may lead to an underestimation of prevalence for obese children for Year 6, but had little or no effect on prevalence for Reception children. It is estimated that Year 6 obesity prevalence may be underestimated by around 1.3 percentage points for 2006/07, around 0.8 percentage points for 2007/08, and around 0.7 percentage points for 2008/09. This appears to be due to obese children being less likely to participate in the NCMP than other children. The upper confidence intervals associated with Year 6 prevalence estimates were extended to indicate the potential underestimation in each of these years. Similar analysis carried out on the 2009/10 dataset showed that it was no longer appropriate to extend the confidence intervals around Year 6 obesity prevalence figures. This was again monitored in 2010/11 and although a slight effect was found, it was considered negligible, requiring no adjustment to either prevalence estimates or the associated confidence intervals. Further details are available in Annex 6.

Improvements in data quality over time can also affect prevalence figures. Although no analysis has yet been carried out to quantify any impact on 2010/11 data[2], this should also be considered when making comparisons over time as it may partly explain any observed changes; both significant and non-significant.

Key findings for 2010/11[3]

- In total, 1,036,608 valid measurements were received for children in England, in Reception and Year 6 – approximately 93% of those eligible[4]. This represents an increase in participation rate since 2009/10 when 91% participated; the corresponding rates were 90% in 2008/09, 88% in 2007/08, and 80% in 2006/07.

- The prevalence of underweight, healthy weight, overweight and obese children by year and sex in England for 2010/11 is summarised in Table i. The prevalence of overweight and obese combined is also presented.

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[2] The following reports each contain information on the impact of data quality on prevalence rates in respect of previous year's NCMP datasets

'NCMP: Detailed Analysis of the 2006/07 National Dataset'
www.noo.org.uk/uploads/doc168_2_NOO_NCMP_report230608.pdf

'NCMP: Detailed Analysis of the 2007/08 National Dataset'

www.noo.org.uk/uploads/doc168_2_noo_NCMPreport1_110509.pdf

'Variations in data collection can influence outcome measures of BMI measuring programmes'
www.ncbi.nlm.nih.gov/pubmed/21834603

[3] An improved methodology to test the statistical significance of the difference between two rates or proportions was introduced in 2009/10. Details are provided in Annex 3.

[4] See 'National Child Measurement Programme Operational Guidance for the 2011/12 school year' (www.dh.gov.uk/en/Publichealth/Obesity/DH_100123) for further information on which children were eligible for inclusion.

Table i: Prevalence of underweight, healthy weight, overweight and obese children by school year and sex, England, 2010/11

Numbers/*Percentages*

		Underweight		Healthy Weight		Overweight		Obese		Combined overweight and obese		Number measured
Reception	Boys	3,237	*1.2%*	207,458	*75.0%*	38,136	*13.8%*	27,919	*10.1%*	66,055	*23.9%*	276,750
	Girls	2,003	*0.8%*	206,133	*77.9%*	33,217	*12.6%*	23,152	*8.8%*	56,369	*21.3%*	264,505
	Both	**5,240**	*1.0%*	**413,591**	*76.4%*	**71,353**	*13.2%*	**51,071**	*9.4%*	**122,424**	*22.6%*	**541,255**
Year 6	Boys	2,812	*1.1%*	162,514	*64.0%*	36,322	*14.3%*	52,358	*20.6%*	88,680	*34.9%*	254,006
	Girls	3,715	*1.5%*	160,825	*66.6%*	34,850	*14.4%*	41,957	*17.4%*	76,807	*31.8%*	241,347
	Both	**6,527**	*1.3%*	**323,339**	*65.3%*	**71,172**	*14.4%*	**94,315**	*19.0%*	**165,487**	*33.4%*	**495,353**

Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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- In Reception, over a fifth (22.6%) of the children measured were either overweight or obese. In Year 6, this proportion was one in three (33.4%).

- The percentage of obese children in Year 6 (19.0%) was over double that of Reception year children (9.4%).

- Among Reception year children, the prevalence of overweight pupils (13.2%) was greater than the prevalence of obese pupils (9.4%). In Year 6, the opposite was true with prevalence of overweight children (14.4%) being lower than that of obese children (19.0%).

- The prevalence of children with a healthy weight was higher in Reception year (76.4%) than Year 6 (65.3%). In both years a higher percentage of girls were at a healthy weight than boys. In Reception year 77.9% of girls and 75.0% of boys were a healthy weight and in Year 6 this was 66.6% and 64.0% respectively.

- The overall prevalence of underweight children is higher in Year 6 (1.3%) than in Reception (1.0%). In Reception, a higher percentage of boys were underweight than girls (1.2% and 0.8% respectively); whereas in Year 6, a higher percentage of girls were underweight than boys (1.5% and 1.1% respectively).

- Obesity prevalence varied by Strategic Health Authority (SHA). South Central SHA had the lowest obesity prevalence for both Reception and Year 6 (8.1% and 16.5% respectively) whilst London SHA showed the highest obesity prevalence (11.1% and 21.9% for each age group respectively).

- SHAs with high obesity prevalence in Reception year tended to also have high prevalence in Year 6.

- As in previous years, a strong positive relationship existed between deprivation and obesity prevalence for children in each age group. The obesity prevalence among Reception year children attending schools in areas in the least deprived decile was 6.9% compared with 12.1% among those living in areas in the most deprived decile. Similarly, obesity prevalence among Year 6 children living in

areas in the least deprived decile was 13.8% compared with 23.7% among those living in areas in the most deprived decile

- Obesity prevalence is significantly higher than the national average for children in both school years in the ethnic groups 'Asian or Asian British', 'Any Other Ethnic Group', and 'Black or Black British' and for the ethnic group 'Mixed' in Year 6.

- Obesity prevalence was significantly higher in urban than rural areas for each age group, as was the case in previous years. The obesity prevalence among Reception year children living in urban areas was 9.7% compared with 8.1% and 7.8% living in town and village areas respectively. Similarly, obesity prevalence among Year 6 children living in urban areas was 19.6% compared with 16.7% and 15.9% living in town and village areas respectively.

- 2010/11 NCMP data has been analysed using the Office for National Statistics Area Classification (ONS-AC) and is presented in this report for the first time. The ONS-AC categorises geographic areas based on a wide variety of common characteristics and provides a simple approach that can be used at local level to target interventions or resources. The results indicated that obesity prevalence was highest in areas classed as Multicultural City Life, followed by areas classed as being Disadvantaged Urban Communities. Urban Fringe areas had the lowest obesity prevalence.

Key findings comparing 2010/11 NCMP findings with earlier years

There are now five years of reliable NCMP data and Figure i presents the prevalence of underweight, overweight, obese and combined overweight and obese children by school year for 2006/07 to 2010/11.

The comparisons that feature in this report have all been tested at a 95% significance level. Both comparisons of prevalence figures relating to groups within the 2010/11 dataset, and comparisons with prevalence figures of earlier years, have only been highlighted where the difference was determined to be statistically significant. Where there was no significant difference between 2 proportions, the term 'similar' has been used. Further details are provided in Annex 3.

It is important to note that all or some of the apparent difference of 0.8 percentage points in the proportion of obese children in Year 6 between 2006/07 and 2007/08 is estimated to be due to the higher participation rate for Year 6 in the later year's programme (as indicated by the expanded confidence interval).

As mentioned earlier, improvements in data quality over time can also affect prevalence figures. Although no analysis has yet been carried out to quantify any impact on 2010/11 data, this should also be considered when making comparisons over time as it may partly explain any observed changes; both significant and non-significant.

2010/11 compared with 2009/10:

- In Reception, the proportion of obese children (9.4%) was lower than in 2009/10 (9.8%). The proportion of overweight and obese children combined (22.6%) was also lower than in 2009/10 (23.1%). The proportion of underweight children was higher in 2010/11 (1.0%) than in 2009/10 (0.9%).

- In Year 6, the proportion of obese children (19.0%) was higher than in 2009/10 (18.7%). However the proportion of overweight and obese children combined was similar (33.4% in both years). The proportion of underweight children was also similar (1.3% in both years).

2010/11 compared with 2006/07:

- In Reception, the proportion of obese children (9.4%) was lower than in 2006/07 (9.9%). The proportion of overweight and obese children combined (22.6%) was also lower than in 2006/07 (22.9%). The proportion of underweight children (1.0%) was again lower than in 2006/07 (1.3%).
- In Year 6, the proportion of obese children (19.0%) was higher than in 2006/07 (17.5%). The proportion of overweight and obese children combined (33.4%) was also higher than in 2006/07 (31.6%).The proportion of underweight children (1.3%) was lower than in 2006/07 (1.5%).

Figure i: Prevalence of underweight, overweight, obese and combined overweight and obese children by NCMP year and school year, 2006/07 to 2010/11
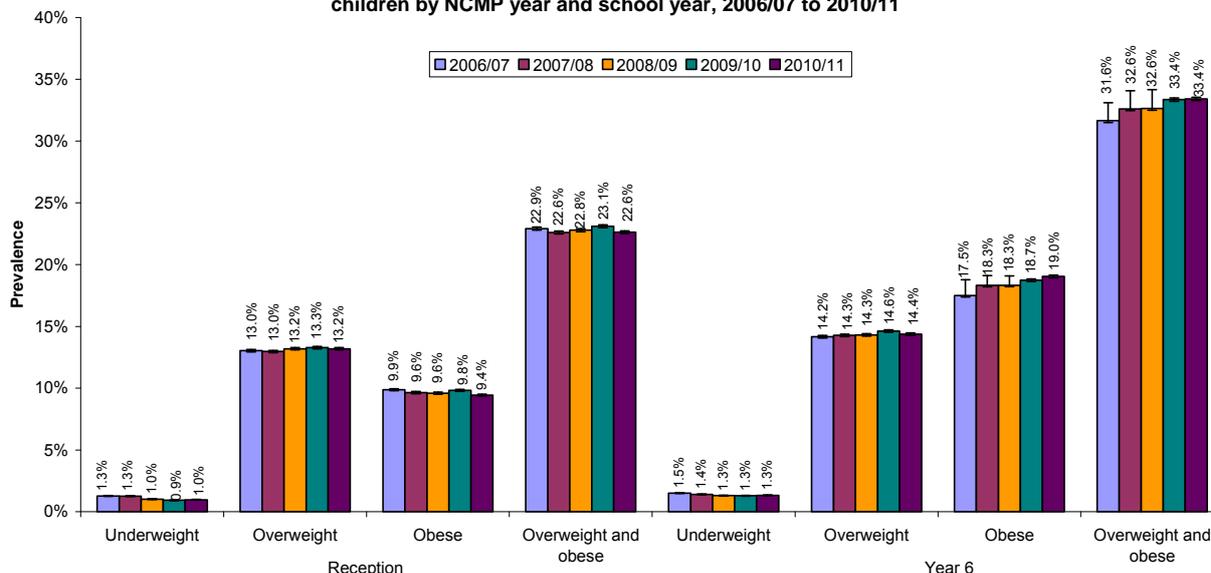
Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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1 Introduction

Established in 2005/06, the National Child Measurement Programme (NCMP) for England[5] records height and weight measurements of children in Reception (typically aged 4–5 years) and Year 6 (aged 10–11 years) and enables detailed analysis of prevalence and trends in child overweight and obesity levels. The program now holds five years of reliable data and the national report holds UK National Statistics status (see Annex 8). The data are key to improving understanding of overweight and obesity in children. They 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 NHS Information Centre for health and social care (NHS IC) since 2006/07. Data are supplied locally by PCTs with the support and cooperation of schools, in line with guidance[4] from the Government Obesity Team.

This report presents the headline findings for the 2010/11 NCMP. The National Obesity Observatory (NOO) will produce additional analysis in 2012 (expected to be published in Spring 2012), and the anonymised national dataset will be made available to NOO and Public Health Observatories (PHOs) to allow regional and local analysis of the data. NCMP datasets relating to 2006/07 to 2009/10 have already been deposited in the UK Data Archive[6] and a reduced version of this year's dataset will be made available in early in 2012.

In addition, NOO will also be presenting NCMP data in an e-Atlas – an interactive mapping tool that enables the user to compare a range of indicators and examine correlations and allows regional and national comparisons. The e-Atlas tool is expected to be available shortly after publication of this report and will be available on the following link: www.noo.org.uk/visualisation/eatlas

The NCMP includes all state schools in England (unless the school declined to participate or if the PCT did not manage to get into that school for other reasons). Independent and special schools[7] are not formally required to participate although their participation is encouraged. Independent and special schools are excluded from the analysis in this report[8], but are included in the dataset provided to NOO and to PHOs for further analysis.

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[5] See www.dh.gov.uk/en/Publichealth/Obesity/DH_100123 for more information about the National Child Measurement Programme, including guidance and resources for undertaking the exercise

[6] UK Data Archive www.data-archive.ac.uk

[7] Those schools categorised as 'Community Special', 'Foundation Special', 'Independent School Approved for SEN Pupils', 'Non-Maintained Special', 'Other Independent', 'Other Independent Special School', 'Pupil Referral Unit', 'Early Years Setting' or 'LA Nursery' are not formally required to participate in the NCMP programme.

[8] 106 out of approximately 2,300 independent or special schools in England chose to take part in 2010/11. Across all PCTs, there were a total of 789 Reception year and 1,210 Year 6 records relating to pupils in these schools. In total this represents only 0.19% of the total number of records across all state and independent / special schools. Records from independent / special schools are excluded from analysis in this report due to concerns around how representative they are due to the low proportion of such schools that participate.

Information for 2010/11 is presented by the current Local Authority (LA) areas (introduced in April 2009). This is available in the accompanying excel file only. Information is also presented by the pre-2009 LA boundaries. In addition, for the first time this year, LA prevalence data is available on the basis of both the LA in which the school is located (Online Table 3A) and the LA of the child's residence (Online Table 3B). In previous years, LA level data has only been available on the basis of the LA in which the school is located. Although in general the 2 sets of figures are quite similar, there is a notable impact on prevalence figures in areas where high concentrations of pupils attend a school located in LA different to their home LA, such as LAs in inner London. The National Obesity Observatory (NOO) intend to publish guidance in early 2012 to assist users further interpret these figures.

Information is also available by the PCT cluster structures introduced in June 2011. (Online Table 6).

The NHS Information Centre continues to look for ways to improve this publication. Feedback can be provided via www.ic.nhs.uk/ncmp.

2 Methodology

2.1 Data collection and validation

The measurement of children's heights and weights, without shoes and coats and in normal, light, indoor clothing, was overseen by healthcare professionals and undertaken in school by trained staff. PCT staff entered these data into specially designed Excel spreadsheets: *the NCMP Upload Tool*. Measurements could be taken at any time during the 2010/11 academic year. Consequently, some children were almost two years older than others in the same school year at the point of measurement[9], however, body mass index (BMI) centile results are adjusted for age.

The data that PCTs uploaded to the NCMP database underwent a series of data quality checks before being included in the national dataset. Full details of these checks can be found in: *National Child Measurement Programme: NHS Information Centre validation process for NCMP data* (see Annex 7). This document was provided as guidance for PCTs and checks were done at each stage of process. The validation process is summarised below:

i.   *As the PCT entered data:* the Upload Tool checked that each variable met certain required conditions. For example, the height and weight were checked for extreme values;

ii. *Before the PCT uploaded data to the NCMP database:* the tool provided a data quality report to highlight if there were any possible areas of concern for the PCT to check and correct. For example, the percentage of duplicate records was calculated;

iii. *After the PCT uploaded data:* PCTs were given access to a secure website providing data quality information about their uploaded data. For example, PCTs were provided with a list of schools, within their boundary, for which no data had been returned. PCTs were able to review this information and correct their data or, if they were satisfied with data quality, they could confirm this and 'finalise' their data;

iv. *After the PCT had 'finalised' their data:* the NHS IC carried out further validation through, for example, comparing data across PCTs and over time. The NHS IC contacted a number of PCTs to query unexpected findings and, where necessary, requested that data be corrected.

PCTs' participation rates were calculated based on validated data. Headcounts were adjusted where necessary and where the pupils in a school were reported to be ineligible due to closure, this was verified using Edubase (www.edubase.gov.uk).

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[9] At the time of measurement in 2010/11, 87% of Year R pupils were aged between 4.5 years and 5.5 years whilst 80% of Year 6 pupils were aged between 10.5 years and 11.5 years. These percentages are unchanged since 2008/09. The impact on the prevalence figures as a result of inclusion of pupils outside these age ranges is negligible.

2.2 Definitions of underweight, healthy weight, overweight and obese

Prevalence rates were calculated by deriving every child's BMI[10] and referencing the age and sex-specific centiles calculated using the British 1990 growth reference (UK90) to count the number of children defined as underweight, healthy weight, overweight or obese as a proportion of the number measured.

The age and sex-specific UK90 growth reference centiles were based on UK growth data. A large representative sample of 37,700 children was constructed by combining data from 17 separate surveys. The sample was rebased to 1990 levels and the data were then used to express BMI as a centile based on the BMI distribution, adjusted for skewness, age and sex using Cole's LMS method[11].

The following thresholds for defining underweight, healthy weight, overweight and obese children were then used:

- **Underweight** is defined as a BMI less than or equal to the 2nd centile;
- **Healthy weight** is defined as a BMI greater than the 2nd centile but less than the 85th centile;
- **Overweight** is defined as a BMI greater than or equal to the 85th centile but less than the 95th centile (i.e. overweight *but not* obese);
- **Obese** is defined as a BMI greater than or equal to the 95th centile.

These thresholds are those conventionally used for population monitoring and are not the same as those used in a clinical setting (where overweight is defined as a BMI greater than or equal to the 91st but below the 98th centile and obese is defined as a BMI greater than or equal to the 98th centile). Prevalence figures which are based on the thresholds used in a clinical setting are available on the NOO website via eAtlas.

2.3 Analyses

2.3.1 Participation

Pupils eligible for inclusion in the NCMP were all children in Reception and Year 6 attending non-specialist maintained state schools in England[12].

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[10] Body mass index (BMI) is an indicator of body fat based on height and weight. $BMI = weight(kg)/height^2 (m^2)$

[11] 'Growth monitoring with the British 1990 growth reference'. Cole *Arch Dis Child.*1997; 76: 47-49.

[12] The following institutions were excluded from the prevalence and participation rate calculations: 'Community Special', 'Foundation Special', 'Independent School Approved for SEN Pupils', 'Non-Maintained Special', 'Other Independent', 'Other Independent Special School', 'Pupil Referral Unit', 'Early Years Setting' and 'LA Nursery'. PCTs were encouraged, but not obliged, to include independent schools and special schools in their NCMP measurements. Numbers of independent school pupils were not, however, included in participation rates used for performance management purposes.

The numbers of pupils at each school were provided by the Department for Education (DfE), but PCTs could edit these figures if necessary. The PCT could also add or remove schools from their geographically assigned list if, despite being within their PCT boundary, another PCT had undertaken measurement in that school. PCT changes to DfE pupil numbers and schools were validated by the NHS IC to ensure accuracy.

The participation rate is the proportion of eligible pupils for whom valid measurements were recorded (see Annex 5). Participation rates are estimates and should be treated with caution, particularly at smaller geographical levels, because of the difficulty in calculating the number of pupils eligible for measurement. For example, in Reception, pupils might join the school throughout the year.

Records were assigned to a PCT, and thereby Strategic Health Authority (SHA), based on the PCT that returned the data. Geographical analyses, showing results by Local Authority (LA) location, are based on the location of the child's school, as well as, for the first time this year, the child's residence. This has been possible due to improvements in child postcode coverage.

The collection of the child's home postcode became a formal requirement in 2007/08. The percentage of records which included a valid child postcode increased from 95.1%[13] in 2007/08 to 99.7% in 2010/11. The child postcode is mapped to Lower Super Output Area (LSOA) to anonymise the data on upload, and is a useful field for analyses by PHOs and PCTs.

The National Obesity Observatory (NOO) published analysis guidance[14] to assist users wish to undertake analysis of NCMP data at small area level in June 2011:

2.3.2 Confidence Intervals

A confidence interval gives an indication of the likely error around an estimate that has been calculated from measurements based on a sample of the population. It indicates the range within which the true value for the population as a whole can be expected to lie, taking natural random variation into account.

Throughout this report, 95% confidence intervals are used. These are known as such because if it were possible to repeat the same programme under the same conditions a number of times, we would expect 95% of the confidence intervals calculated in this way to contain the true population value for that estimate.

Larger sample sizes lead to narrower confidence intervals, since there is less natural random variation in the results when more individuals are measured. The NCMP has relatively narrow confidence limits because of the large size of the sample.

Further details on calculating confidence intervals are provided in Annex 3.

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[13] This percentage has been amended from 97% previously published following an exercise to further cleanse historic NCMP datasets and re-circulate to PHOs.

[14] 'NCMP Guidance for small area analysis' www.noo.org.uk/uploads/doc/vid_11853_NCMP_Guidanceforsmallarea%20analysisFINAL.pdf

2.3.3 Significance Testing

When interpreting the prevalence figures contained in this report, it is important to consider the associated confidence intervals. This is to determine whether any differences in prevalence figures are real or might be a result of chance due to sampling variation. Where 95% confidence limits for two sub-groups do not overlap, the difference is said to be statistically significant. As this is a conservative method of testing for significance which can be used to identify some, but not all, significant changes, the method described in Annex 3 is also applied in this report where appropriate. This method involves calculating 95% confidence intervals around the absolute difference between two proportions p_1 and p_2. A significant difference exists between p_1 and p_2 if and only if zero is not included in the range covered by the 95% confidence intervals around the absolute difference.

2.3.4 Regression Analysis

When examining prevalence rates it is important to consider how the participation rate might affect the calculated prevalence figures.

In 2006/07, 80% of eligible pupils in Reception and Year 6 combined were measured. This percentage increased to 88% in 2007/08, to 90% in 2008/09, to 91% in 2009/10 and to 93% in 2010/11. Regression analysis was performed to investigate the possible effect participation rate had on the recorded prevalence of overweight and/or obese children.

Analyses performed in 2007/08 and repeated subsequently, concluded that a lower participation rate may lead to an underestimation of prevalence for obese children for Year 6, but had little or no effect on prevalence for Reception children. It is estimated that Year 6 obesity prevalence was underestimated by around 1.3 percentage points for 2006/07, around 0.8 percentage points for 2007/08, and around 0.7 percentage points for 2008/09 due to obese children being more likely to opt out of being measured than other children. Year 6 obesity confidence intervals were extended to highlight this potential underestimation in each of these years.

Similar analyses carried out on the 2009/10 NCMP dataset showed that it was no longer appropriate to extend the upper confidence intervals around Year 6 obesity prevalence figures. This was again monitored in 2010/11. A significant association between participation rate and obesity prevalence was identified for both Reception year ($r = 0.24$) and Year 6 ($r = 0.36$). However, given the high overall participation rate (93.4% for Reception year and 91.8% for Year 6) and low standard deviation in these rates (4.2% for Reception year and 4.7% for Year 6), the impact of differential opt-out among obese children was much smaller than in previous years and considered negligible and therefore no adjustment was made. We will continue to monitor this relationship in subsequent NCMP reports, although if high participation rates are maintained it is unlikely any adjustment will be considered necessary. Further details on this are available in Annex 6.

The possible effects of other factors, such as deprivation, on participation and prevalence have not been examined in this report.

3 Results

3.1 Participation

The participation rate is the percentage of pupils eligible in state schools in each year group for whom valid measurements were recorded. In 2010/11, PCTs were working towards a goal of achieving at least an 85% participation rate in each year group.

The overall participation rates achieved nationally in 2010/11 were:

- 93% for Reception year (541,255 pupils measured); a 0.6 percentage point increase from 2009/10
- 92% for Year 6 (495,353 children); a 1.9 percentage point increase from 2009/10
- 93% for Reception and Year 6 combined (1,036,608 children); a 1.2 percentage point increase from 2009/10.

All 151[15] PCTs provided data for Reception year and Year 6 children in 2010/11.

- 96% of PCTs (145 of 151) met or exceeded the 85% participation rate goal for Reception year, compared with 97% (148 of 152) in 2009/10.
- 95% of PCTs (144 of 151) met or exceeded the 85% participation rate goal for Year 6, compared with 94% (143 of 152) in 2009/10.
- Annex 2 shows overall participation rates for all 151 PCTs.

Of the pupils measured, boys accounted for 51% in Reception and in Year 6. It is not possible to calculate the participation rates by sex since the numbers of eligible pupils are not collected by sex.

Figure 1 shows the participation rates by PCT for Reception; Figure 2 shows the rates for Year 6:

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[15] On 01/04/2010 Blackburn with Darwen PCT (5CC) was renamed to Blackburn with Darwen Teaching Care Trust Plus (TAP). West Hertfordshire PCT (5P4) and East and North Hertfordshire PCT (5P3) merged to become Hertfordshire PCT (5QV). As a result, there are now 151 PCTs post April 2010 compared with 152 pre April 2010. As a result of a statutory instrument which took effect on 15th April 2011, the designation of Solihull Care Trust (TAM) has been revoked and organisation is now known as Solihull PCT (5QW).

Figure 1: NCMP participation rates for Reception year, 2010/11, by Primary Care Trust

Legend:
- 95% and over
- 90% to <95%
- 85% to <90%
- 80% to <85%
- 75% to <80%
- less than 75%

Data sources: ONS Boundary Files 2011,
The Health and Social Care Information Centre,
Lifestyle Statistics / Department of Health
Cross-Government Obesity Unit NCMP Dataset
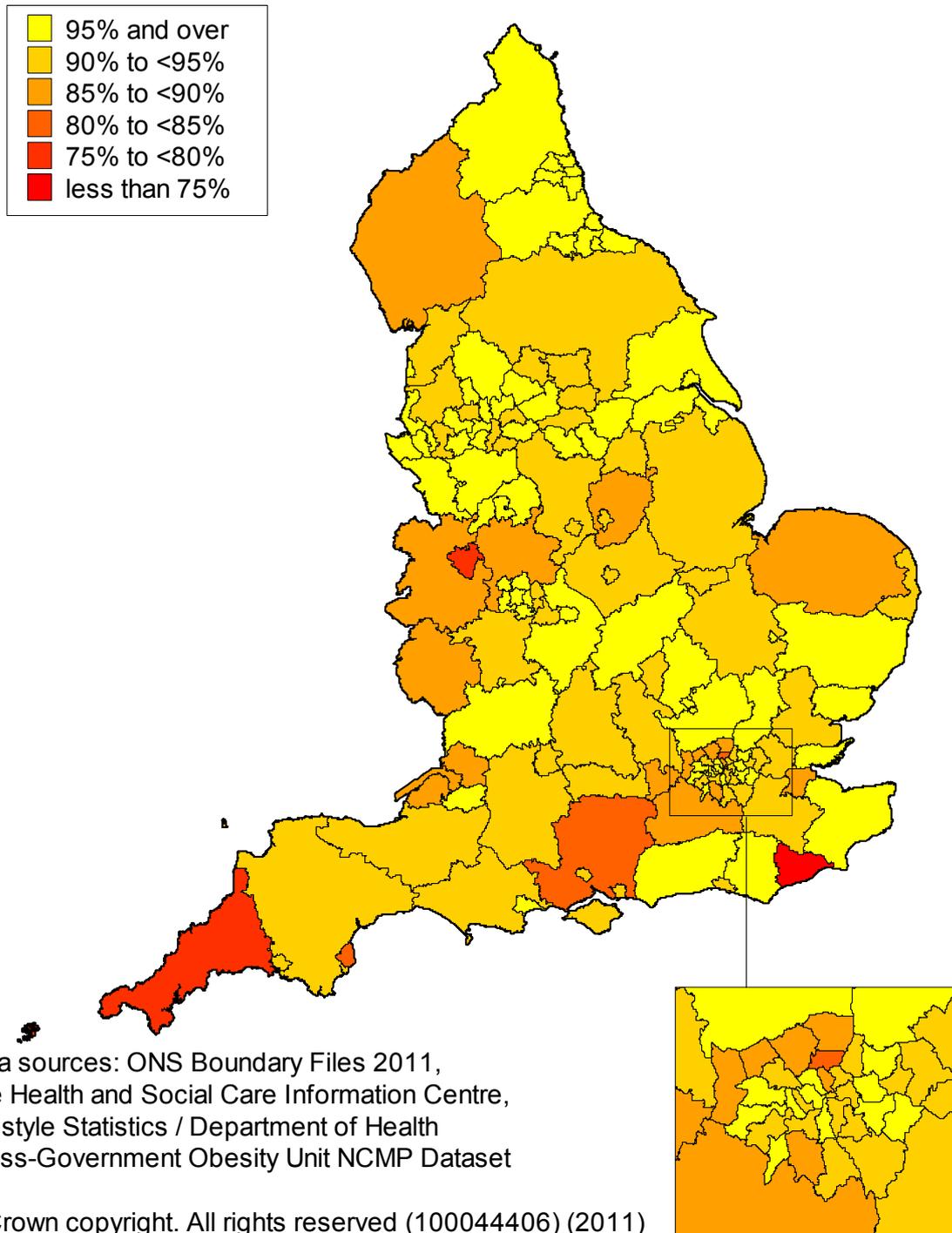
Figure 2: NCMP participation rates for Year 6 2010/11, by Primary Care Trust

Legend:
- 95% and over
- 90% to <95%
- 85% to <90%
- 80% to <85%
- 75   to <80%
- less than 75%

Data sources: ONS Boundary Files 2011,
The Health and Social Care Information Centre,
Lifestyle Statistics / Department of Health
Cross-Government Obesity Unit NCMP Dataset

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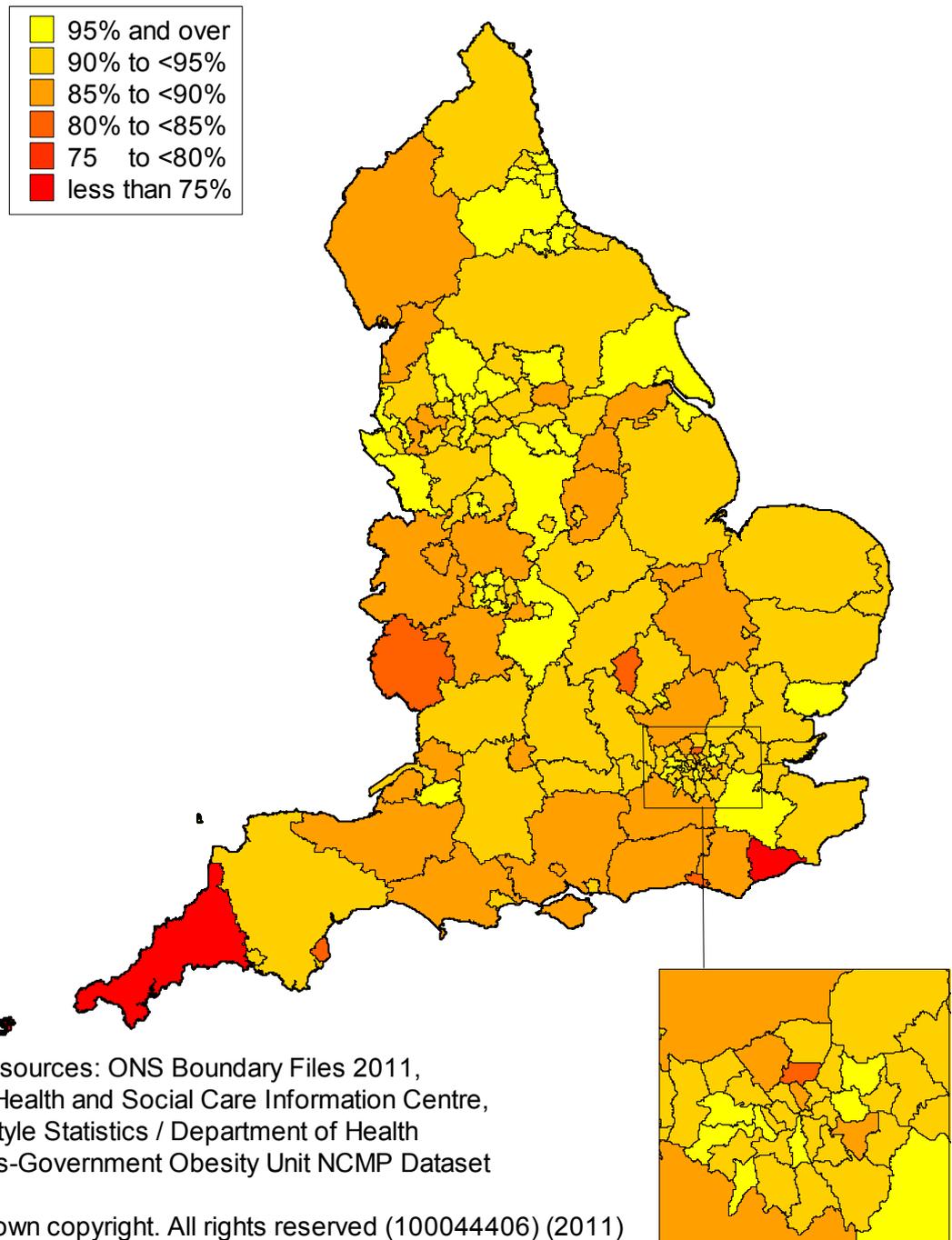
3.2 Prevalence

3.2.1 Prevalence of underweight, healthy weight, overweight, obese and combined overweight and obese children: national findings

Prevalence rates have been calculated by first deriving every child's BMI and referencing the age and sex-specific UK90 classification to calculate the proportion of children defined as underweight, healthy weight, overweight or obese according to the population monitoring criteria[16].

Since the NCMP sample size is large, the confidence intervals of the prevalence estimates are very narrow at national level. Where 95% confidence intervals for prevalence estimates do not overlap, it can be deduced that differences are statistically significant. As this is a conservative method of testing for significance, the method described in Annex 3 is also applied in this report where appropriate.

Table A in Annex 1 shows the prevalence of underweight, healthy weight, overweight, obese and combined overweight and obese prevalence, with associated 95% confidence intervals, by school year, Primary Care Trust (PCT) and Strategic Health Authority (SHA).

Figures 3 and 4 below show the prevalence of underweight, overweight, obese and combined overweight and obese children, with associated 95% confidence intervals, by sex, in England, 2010/11.

---

[16] Prevalence rates calculated using the age and sex-specific UK National Body Mass Index (BMI) centile classification. A large representative sample of 37,700 children was constructed by combining data from 17 separate surveys. The sample was rebased to 1990 levels and the data were then used to express BMI as a centile based on the BMI distribution, adjusted for skewness, age and sex using Cole's LMS method - *Growth monitoring with the British 1990 growth reference.* Cole *Arch Dis Child.*1997; 76: 47-49.

- 'underweight' is defined as less than or equal to the 2nd centile;
- 'overweight' is defined as greater than or equal to the 85th centile but less than the 95th centile;
- 'obese' is defined as greater or equal to the 95th centile;
- 'overweight and obese combined' is defined as greater than or equal to the 85th centile.

Figure 3: Prevalence of underweight, overweight, obese and combined overweight and obese children in Reception, by sex, England, 2010/11
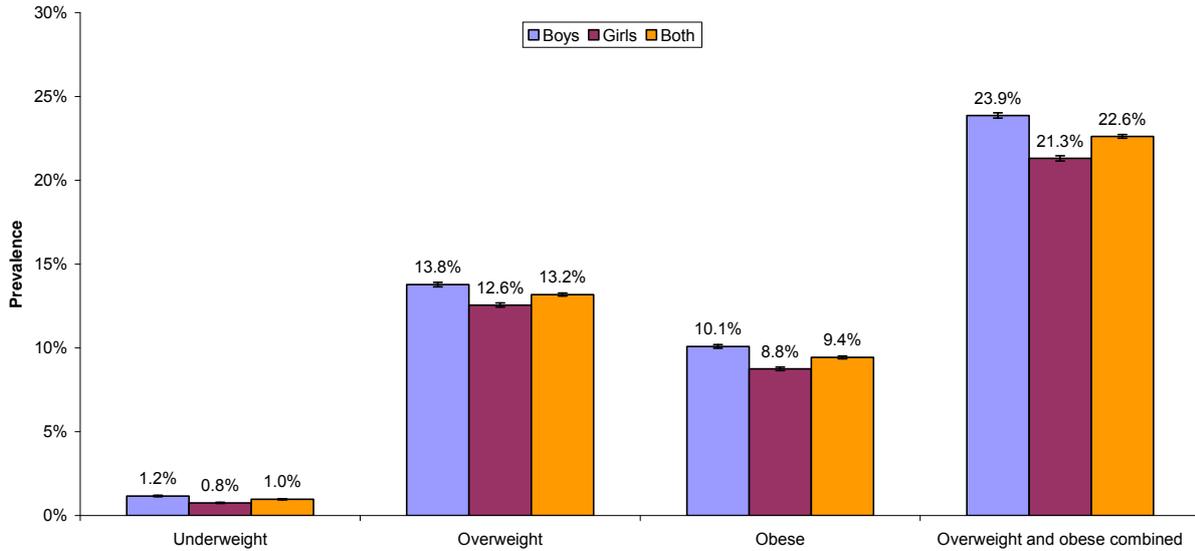
Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Figure 4: Prevalence of underweight, overweight, obese and combined overweight and obese children in Year 6, by sex, England, 2010/11

Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Figure 5 shows the 2010/11 prevalence breakdowns including healthy weight.

Figure 5: Prevalence of underweight, healthy weight, overweight and obese children in Reception and Year 6, by sex, England, 2010/11
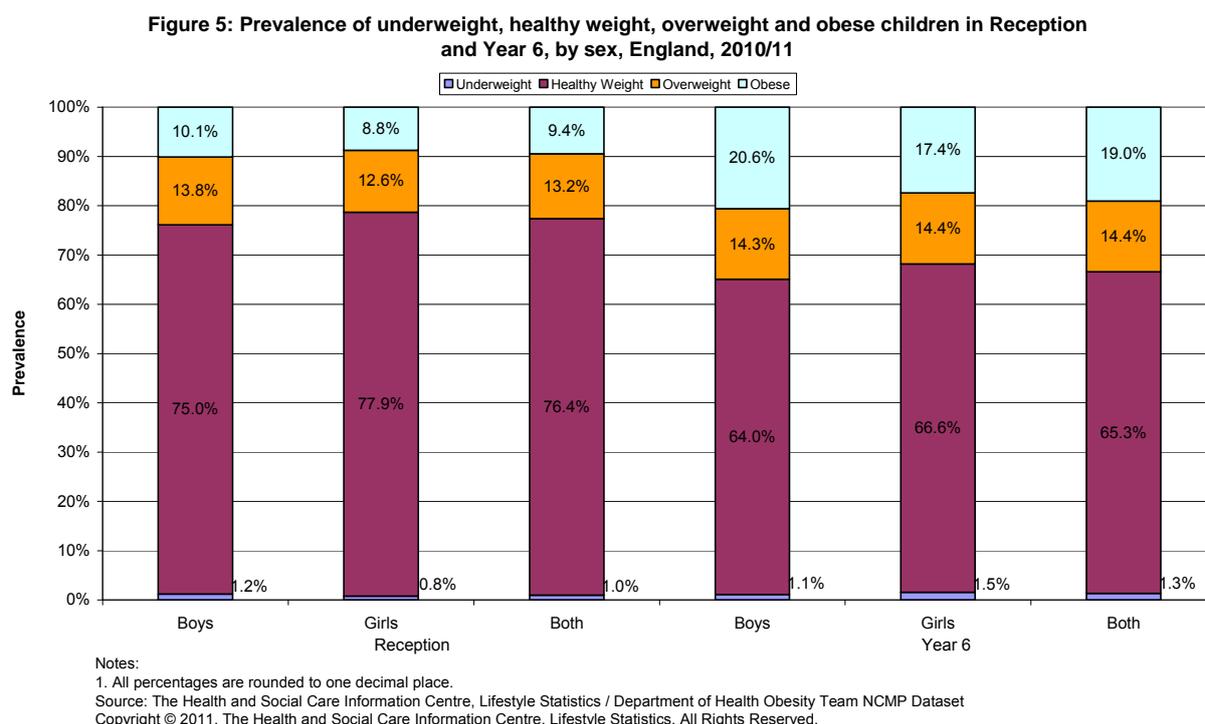
Key findings for 2010/11:

- In Reception over a fifth (22.6%) of children were classified as either overweight or obese; in Year 6 this proportion was one in three (33.4%);

- The prevalence of obese children in Year 6 (19.0%) is over double that in Reception (9.4%);

- Prevalence of obesity was found to be higher among boys than girls in both school years. In Reception, 10.1% boys and 8.8% girls were classified as obese. In Year 6 the percentages were 20.6% and 17.4% respectively;

- The overall prevalence of underweight children is higher in Year 6 (1.3%) than in Reception (1.0%). In Reception, a higher percentage of boys were underweight than girls (1.2% and 0.8% respectively); whereas in Year 6, a higher percentage of girls were underweight than boys (1.5% and 1.1% respectively);

- Among Reception year children, the prevalence of overweight pupils (13.2%) was greater than the prevalence of those who were classified as obese (9.4%). In Year 6, the opposite was true with prevalence of overweight children (14.4%) being lower than that of obese children (19.0%).

- The prevalence of children with a healthy weight was higher in Reception year (76.4%) than Year 6 (65.3%). In both years a higher percentage of girls were at a healthy weight than boys. In Reception year 77.9% of girls and 75.0% of boys were a healthy weight and in Year 6 this was 66.6% and 64.0% respectively.

3.2.2 Comparisons between the 2010/11 headline findings and those of previous years

It is important to note that all or some of the apparent difference of 0.8 percentage points in the proportion of obese children in Year 6 between 2006/07 and 2007/08 is estimated to be due to the higher participation rate for Year 6 in the later year's programme (as indicated by the expanded confidence interval).

As mentioned earlier, improvements in data quality over time can also affect prevalence figures. Although no analysis has been carried out to quantify any impact, this should also be considered when making comparisons over time as it may partly explain any observed changes; both significant and non-significant. For further details see Annex 6 of the report.

Figure 6 shows the prevalence of underweight, overweight, obese and combined overweight and obese children between 2006/07 to 2010/11.
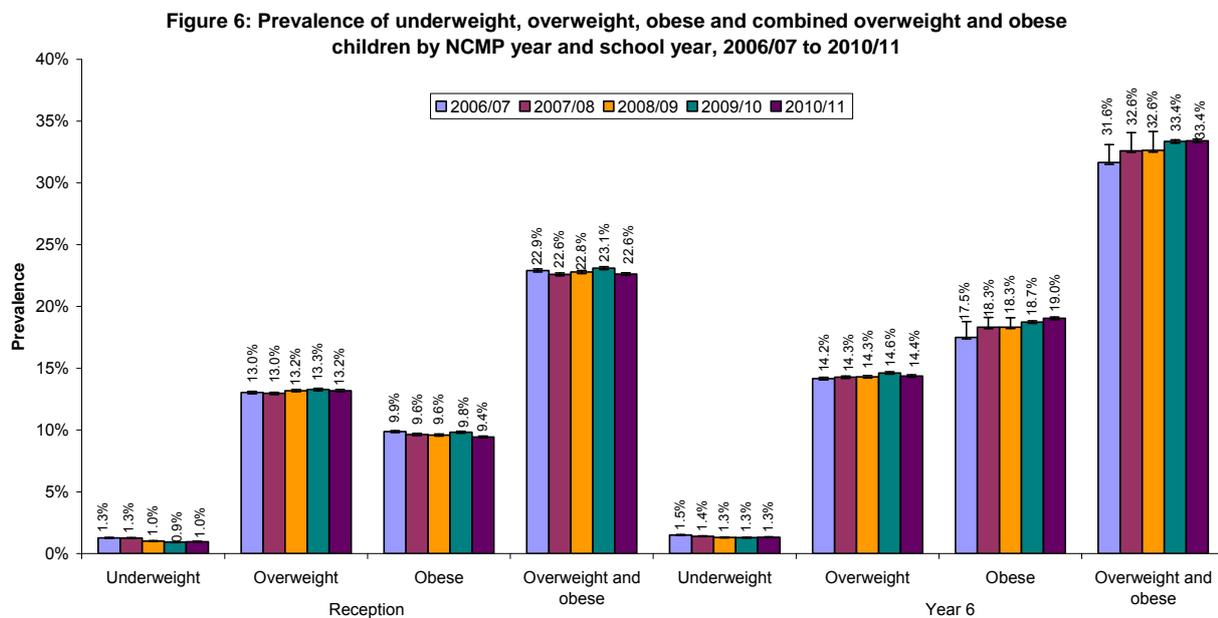
Figure 6: Prevalence of underweight, overweight, obese and combined overweight and obese children by NCMP year and school year, 2006/07 to 2010/11

Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Figure 7 shows prevalence breakdowns for each BMI category from 2006/07 to 2010/11

Figure 7: Prevalence of underweight, healthy weight, overweight and obese children by NCMP year, 2006/07 to 2010/11
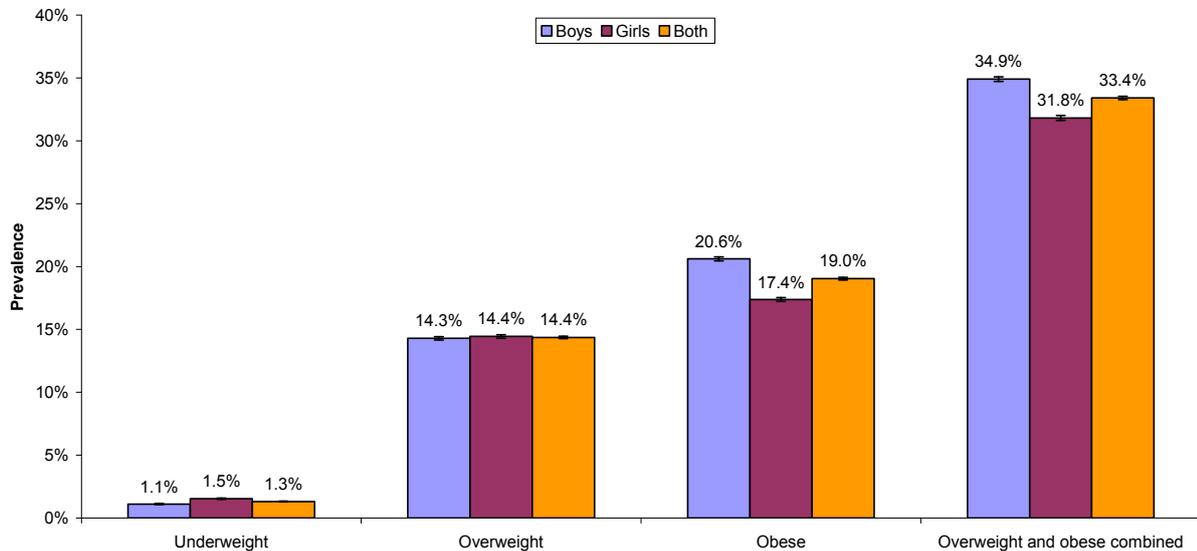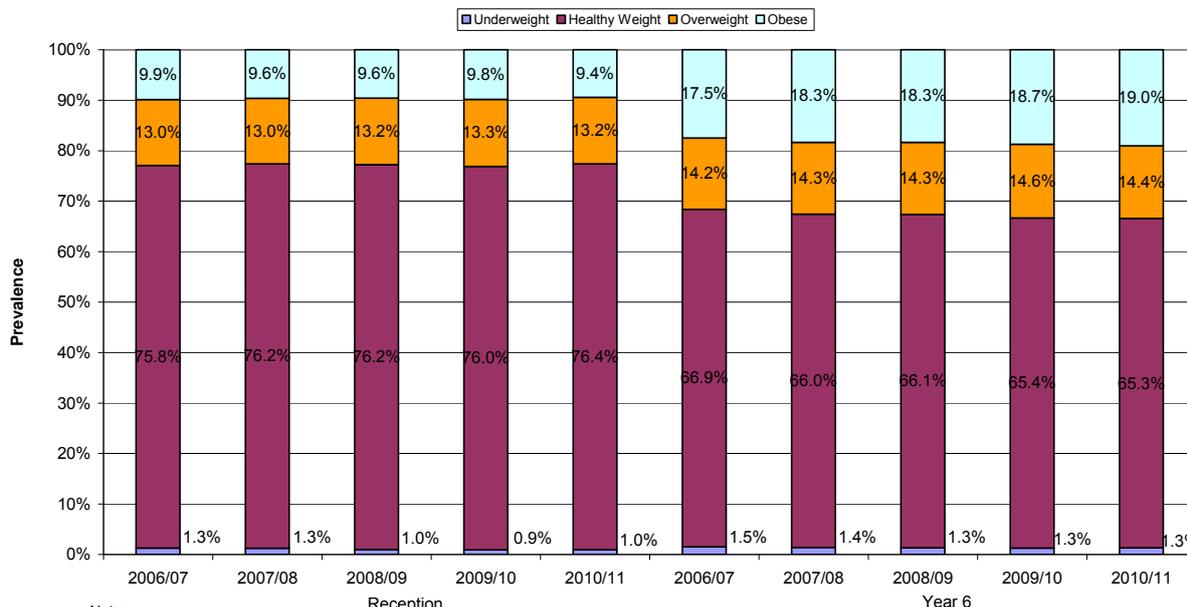

Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics /Department of Health Obesity Team NCMP Dataset
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The key findings when the results from 2010/11 are compared to 2009/10 are as follows:

- In Reception, the proportion of obese children (9.4%) was lower than in 2009/10 (9.8%). The proportion of overweight and obese children combined (22.6%) was also lower than in 2009/10 (23.1%). The proportion of underweight children was higher in 2010/11 (1.0%) than in 2009/10 (0.9%).

- In Year 6, the proportion of obese children (19.0%) was higher than in 2009/10 (18.7%). However the proportion of overweight and obese children combined was similar (33.4% in both years). The proportion of underweight children was also similar (1.3% in both years).

The key findings when the results from 2010/11 are compared to 2006/07 are as follows:

- In Reception, the proportion of obese children (9.4%) was lower than in 2006/07 (9.9%). The proportion of overweight and obese children combined (22.6%) was also lower than in 2006/07 (22.9%). The proportion of underweight children (1.0%) was again lower than in 2006/07 (1.3%).

- In Year 6, the proportion of obese children (19.0%) was higher than in 2006/07 (17.5%). The proportion of overweight and obese children combined (33.4%) was also higher than in 2006/07 (31.6%).The proportion of underweight children (1.3%) was lower than in 2006/07 (1.5%).

3.2.3 Prevalence by Strategic Health Authority (SHA)

Prevalence of underweight, overweight and obese children, with associated 95% confidence intervals, by the Strategic Health Authority (SHA) of the Primary Care Trust (PCT) which measured the child in 2010/11 are shown in Figure 8 for Reception and Figure 9 for Year 6. Detailed tables are available in Annex 1 showing underweight, healthy weight, overweight, and obese prevalence, with associated 95% confidence intervals, by school year, at PCT and SHA.

NCMP data for 2010/11 is presented by the new LA areas (introduced in April 2009). Information also presented by the pre-2009 LA areas as these are still recognised geographical areas. In addition, for the first time this year LA prevalence data is available on the basis of both the LA in which the school is located and the LA of the child's residence (Online Tables 3 and 3A).

Information presented in an e-Atlas (hosted by NOO and available at www.noo.org.uk/visualisation/eatlas) also contains NCMP data for 2006/07 and 2007/08 recalculated to the current LA areas (introduced in April 2009) to allow comparison over time.

Figure 8: Prevalence of underweight, overweight, and obese children in Reception, by SHA, England, 2010/11
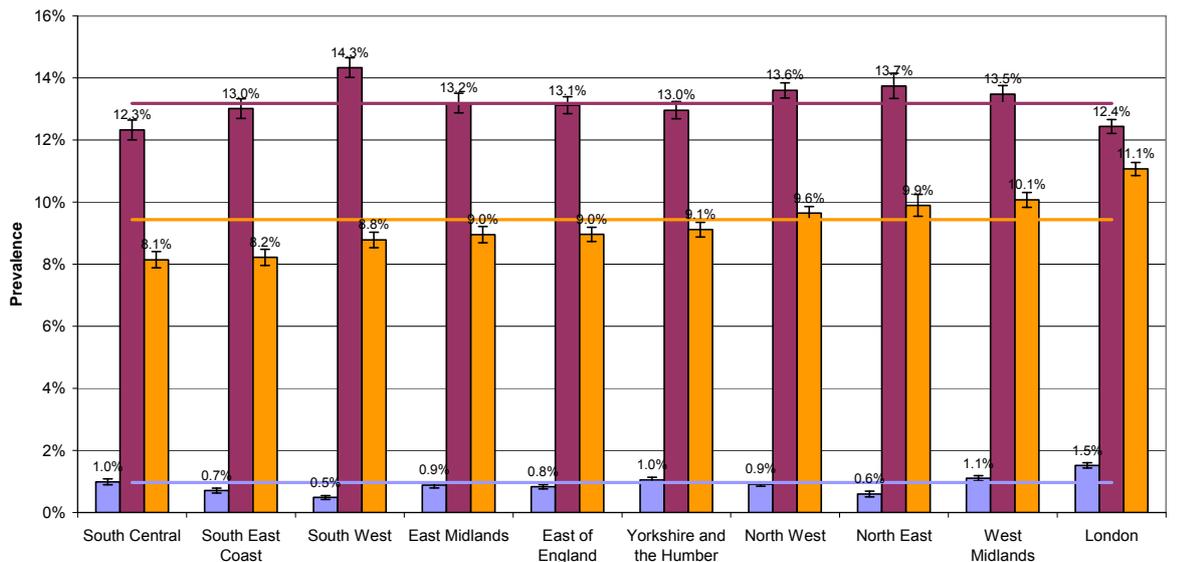
Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Figure 9: Prevalence of underweight, overweight, and obese children in Year 6, by SHA, England, 2010/11

Figure 10 compares the prevalence of children who are overweight or obese ('combined overweight and obese'), with associated 95% confidence intervals, in Reception and Year 6, by SHA, in 2010/11.

Figure 10: Prevalence of "combined overweight and obese" children, by school year and SHA, England, 2010/11
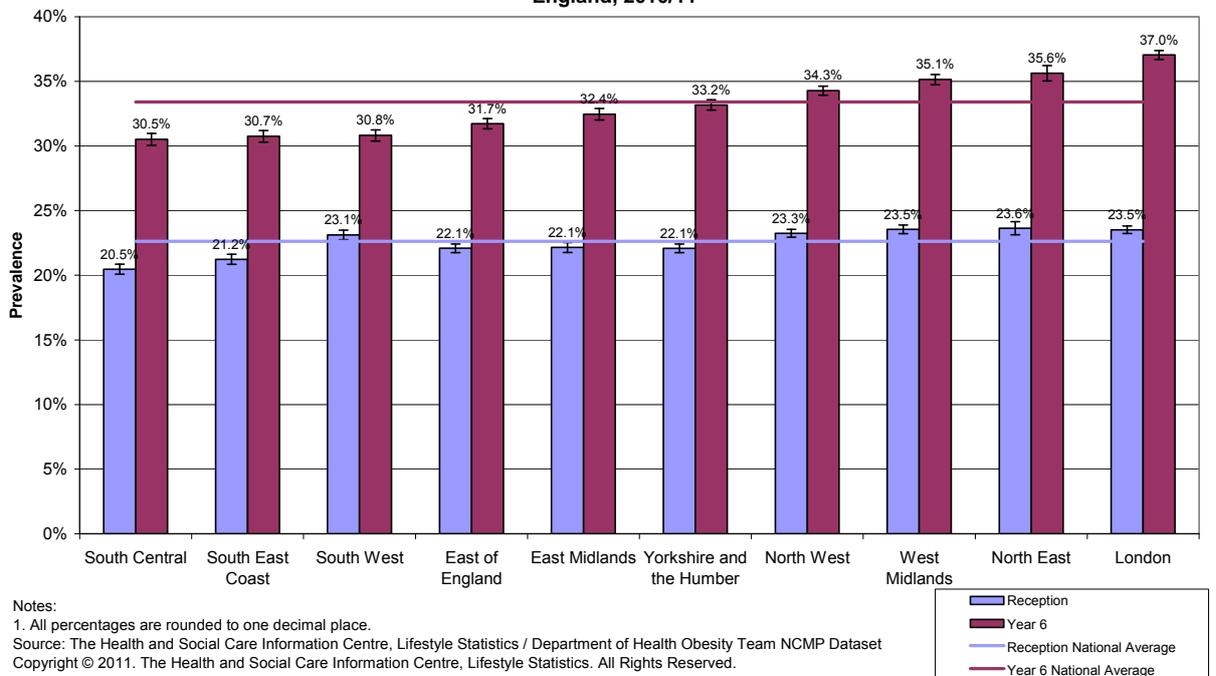
Key findings:

- Obesity prevalence varied by Strategic Health Authority (SHA). South Central SHA had the lowest obesity prevalence for both Reception and Year 6 (8.1% and 16.5% respectively) whilst London SHA showed the highest obesity prevalence (11.1% and 21.9% for each age group respectively).

- SHAs with high obesity prevalence in Reception year tended to also have high prevalence in Year 6.

- Analysis of 2006/07 and 2007/08 NCMP data showed that child obesity prevalence is correlated with area deprivation factors and child ethnicity. Areas with higher concentrations of deprived areas and particular ethnic profiles, such as London, would therefore be expected to have higher rates of child obesity.

- The National Obesity Observatory will be producing further analysis of the 2010/11 NCMP data, and this will provide further analysis on the links between obesity and other factors. This is expected to be published from Spring 2012 and will be available from the following link:
  www.noo.org.uk/NOO_pub

3.3.4 Prevalence by Primary Care Trust

Obesity prevalence varied by Primary Care Trust (PCT). For Reception Year this ranged from 6.4% in Richmond and Twickenham PCT to 14.6% in City and Hackney PCT and in Year 6 the range was from 10.7% in Richmond and Twickenham PCT to 26.4% in Southwark PCT.

Figures 11 and 12 show Reception and Year 6 obesity prevalence by PCT, where the PCT recorded is the one that took responsibility for the school the child attended. Annex 1 provides more detailed tables.

Figure 11: Prevalence of obese children in Reception, by Primary Care Trust, England, 20010/11

Less than 6%
6% to < 8%
8% to <10%
10% to <12%
12% to <14%
14% to <16%
16% and over

Data sources: ONS Boundary Files 2011,
The Health and Social Care Information Centre,
Lifestyle Statistics / Department of Health
Cross-Government Obesity Unit NCMP Dataset

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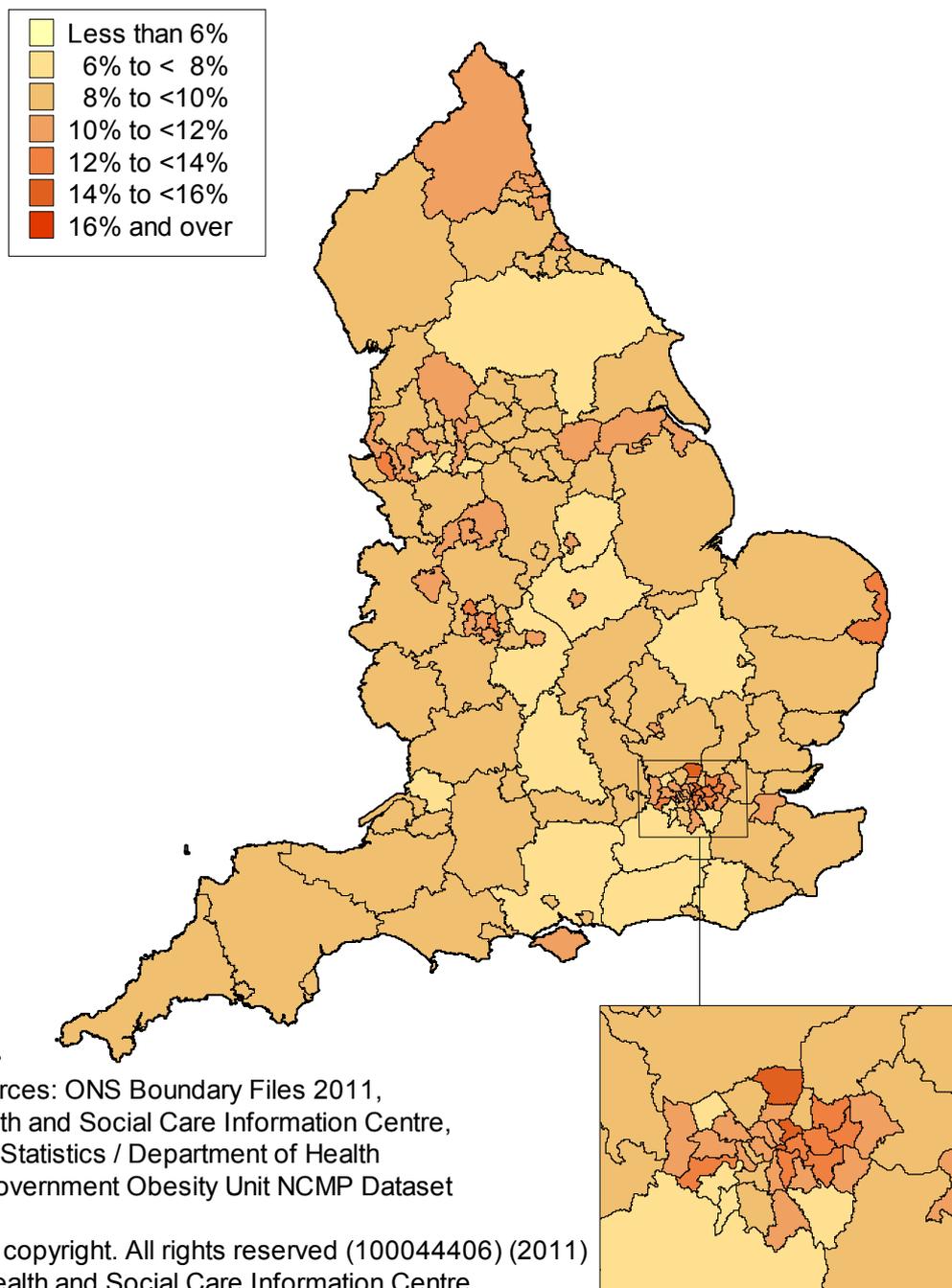
Figure 12: Prevalence of obese children in Year 6, by Primary Care Trust, England, 2010/11
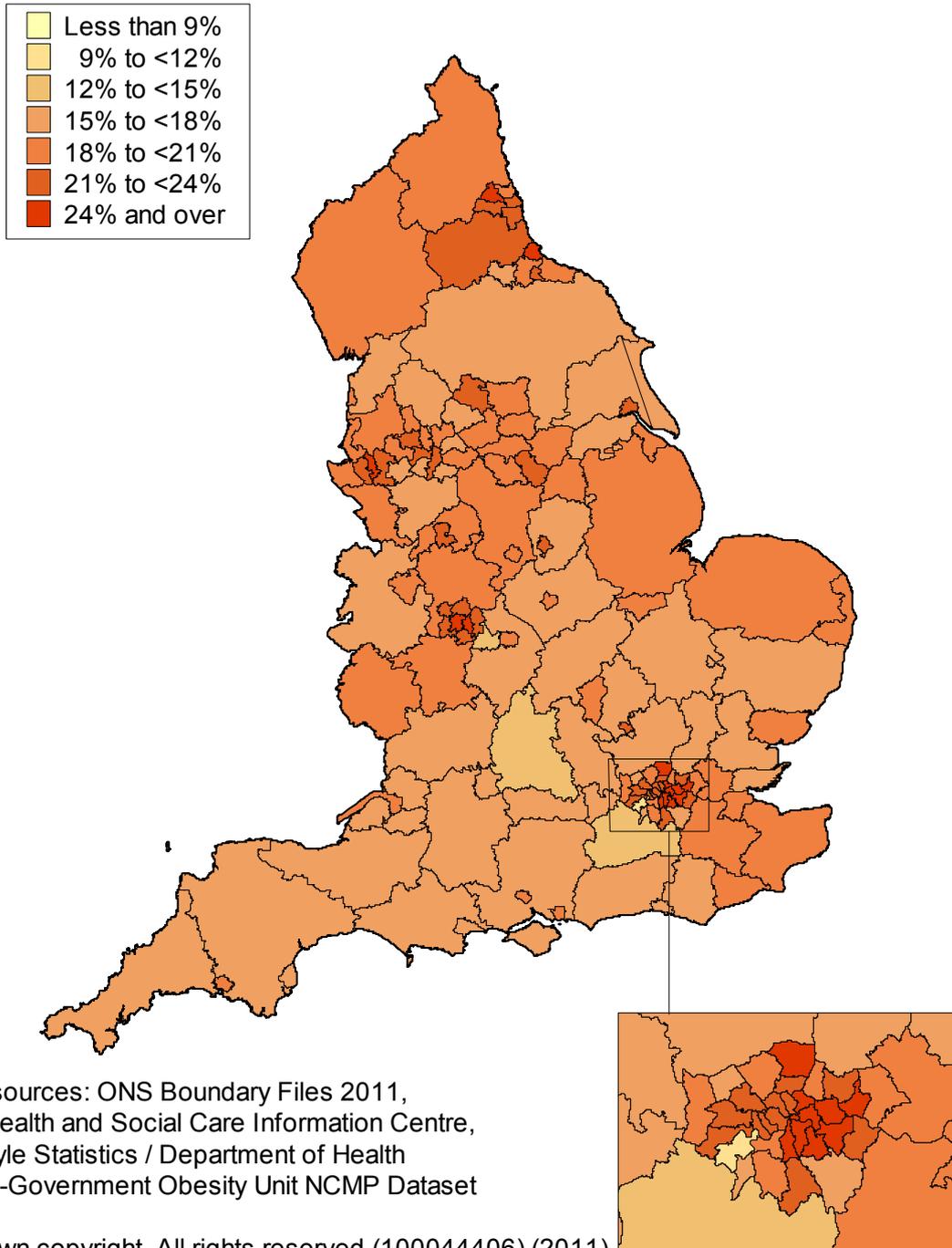
Less than 9%
9% to <12%
12% to <15%
15% to <18%
18% to <21%
21% to <24%
24% and over

Data sources: ONS Boundary Files 2011,
The Health and Social Care Information Centre,
Lifestyle Statistics / Department of Health
Cross-Government Obesity Unit NCMP Dataset

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3.3.5 Prevalence by area deprivation

Figures 13 and 14 investigate the relationship between deprivation as measured by the 2010 Index of Multiple Deprivation (IMD) and the prevalence of underweight, overweight and obese Reception and Year 6 children. Records have been placed into one of ten equal sized groups (deciles) based on the IMD score of the child's school location. The prevalence of underweight, overweight and obese children within each group (where 1 is the least deprived and 10 is the most deprived) have then been calculated.

The prevalence figures by IMD decile have been derived on the basis of the school postcode in order to make the results comparable with those of previous years. Currently, there are an insufficient number of years in the NCMP time series where child postcode completion rates are high enough to allow comparisons of IMD data over time on the basis of child postcode. This will be reviewed in subsequent publications and the basis may change if the high child postcode completion rate seen in recent years is maintained. NOO intend to publish guidance in early 2012 to assist users to further interpret the differences that arise between prevalence figures which are derived on the two different bases.

Figure 13: Prevalence of underweight, overweight and obese children in Reception by school area 2010 IMD deciles, England, 2010/11

Notes:
1. All percentages are rounded to one decimal place.
2. IMD decile - 1st decile (least deprived), 10th decile (most deprived). This is a change from previous years when IMD decile '1' used to correspond to the most deprived and '10' to the least deprived deciles. This change has been carried out to introduce consistency in the labelling convention used in NCMP reports produced by the NHS IC and the National Obesity Observatory (NOO) which present IMD data.

Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
Copyright © 2011. The Health and Social Care Information Centre, Lifestyle Statistics. All Rights Reserved.
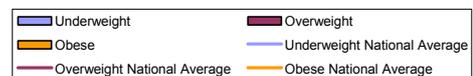
29

Figure 14: Prevalence of underweight, overweight and obese children in Year 6 by school area 2010 IMD decile, England, 2010/11
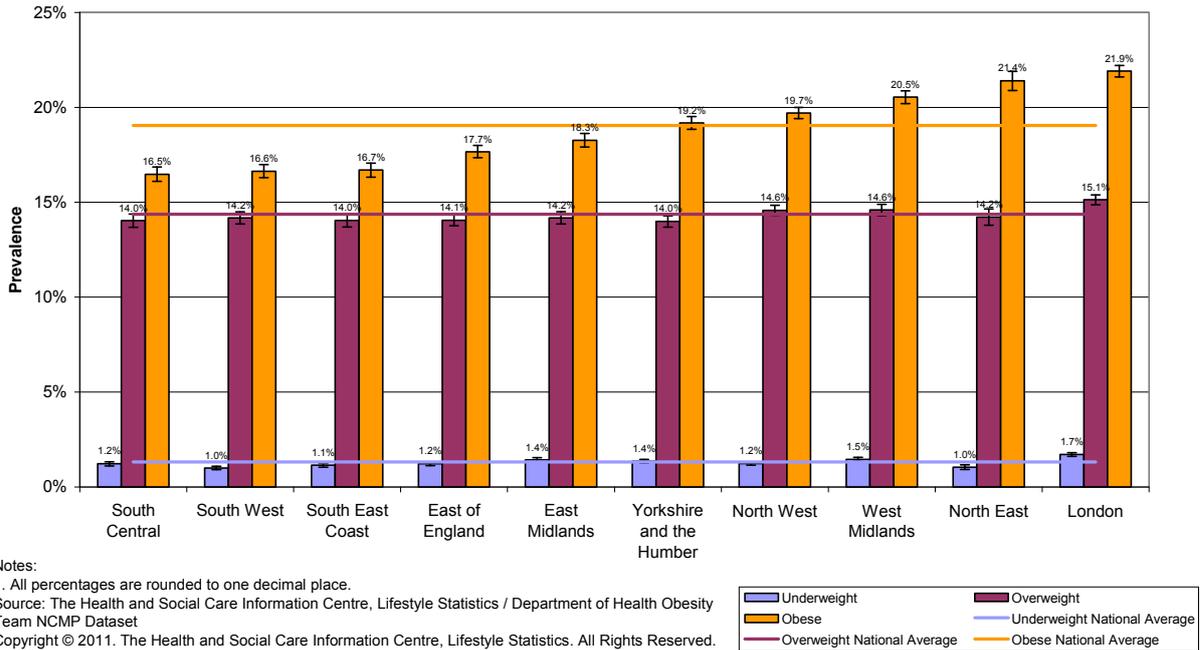
Figure 15 compares the prevalence of children who are overweight or obese ('combined overweight and obese'), with associated 95% confidence intervals, in Reception and Year 6, by IMD decile, in 2010/11.

Figure 15: Prevalence of "combined overweight and obese" children, by school area 2010 IMD decile, England, 2010/11
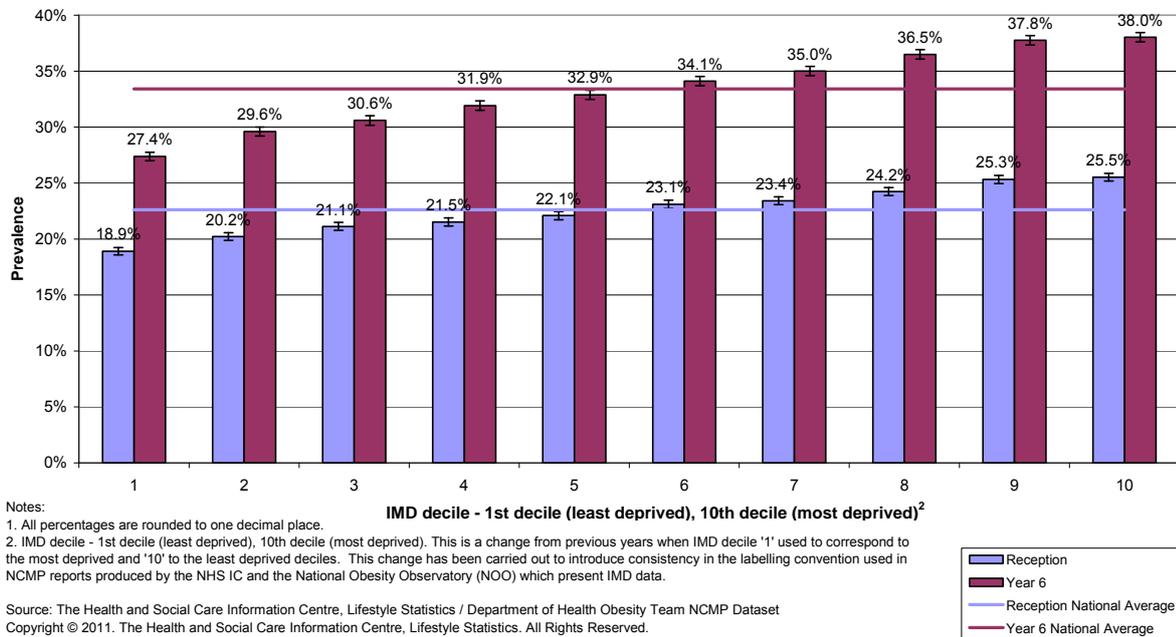
Key findings:

- As in previous years, a strong positive relationship existed between deprivation (as measured by the 2010 IMD score) and obesity prevalence for children in each age group. The obesity prevalence among Reception year children attending schools in areas in the least deprived decile was 6.9% compared with 12.1% among those attending schools in the most deprived decile. Similarly, obesity prevalence among Year 6 children attending schools in the least deprived decile was 13.8% compared with 23.7% among those attending school in the most deprived decile

- For both school years, the four most deprived deciles have obesity prevalence that is significantly higher than the national average;

- For both school years, the five least deprived deciles have obesity prevalence that is significantly lower than the national average;

- The three most deprived groups have a prevalence of underweight children that is higher than the national average for both school years;

3.3.6 Prevalence by ethnicity

Since 2007/08, collection of the ethnicity of participating children was a mandatory requirement. PCTs were able to supply ethnic code 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.[17]

Of the 1,036,608 children for whom valid measurements were submitted, 83% of records included a valid ethnic code (for the purpose of this report, 'not stated' and 'unknown' are considered invalid). This is an improvement on 2007/08 and 2008/09 when 67% and 77% of records respectively had a valid ethnic code and the same percentage as seen in 2009/10.

Figures 16 and 17 show the prevalence of underweight, overweight and obese children by ethnic category, for Reception and Year 6 respectively. The associated 95% confidence intervals are also presented.

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[17] The seven ethnic categories used for analysis have been derived by combining the following NHS ethnic categories:

- o **White**: White British, White Irish, White Any other White background;
- o **Mixed**: Mixed White and Black Caribbean, Mixed White and Black African, Mixed White and Asian, Mixed Any other mixed background;
- o **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;
- o **Black or Black British**: Black or Black British Caribbean, Black or Black British African, Black or Black British Any other Black background;
- o **Chinese**: Chinese;
- o **Any other ethnic group**: Any other ethnic group;
- o **Unknown**: Not Stated or data not returned by PCT

Figure 16: Prevalence of underweight, overweight and obese children in Reception, by ethnic category, England, 2010/11
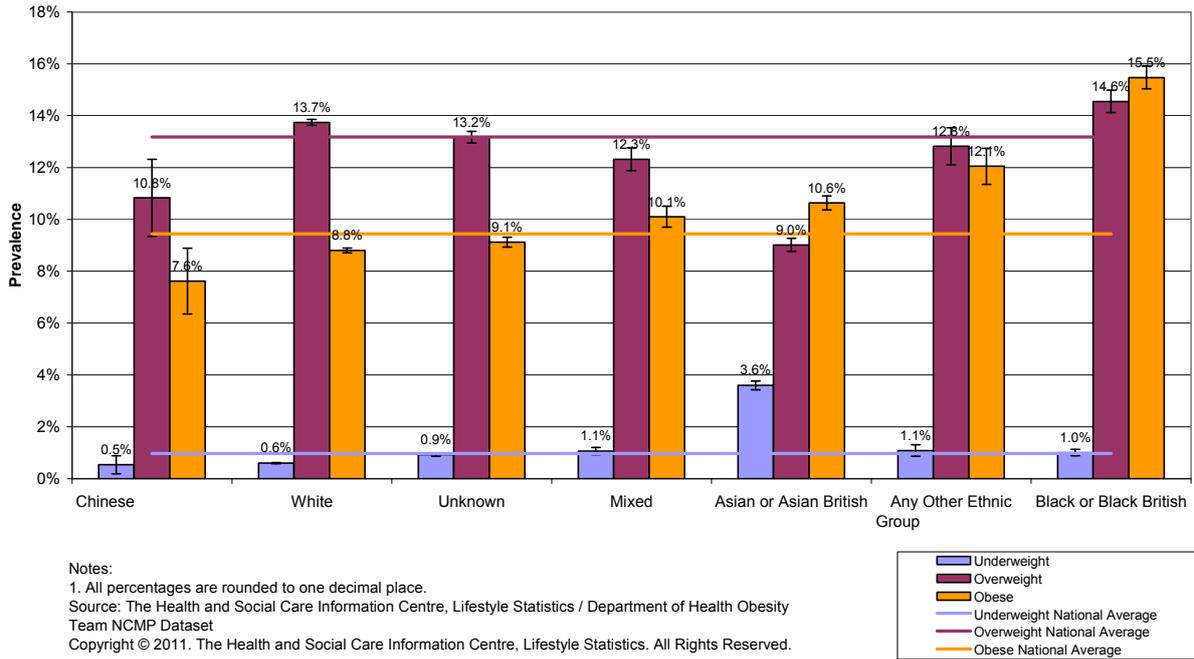
Figure 17: Prevalence of underweight, overweight and obese children in Year 6, by ethnic category, England, 2010/11
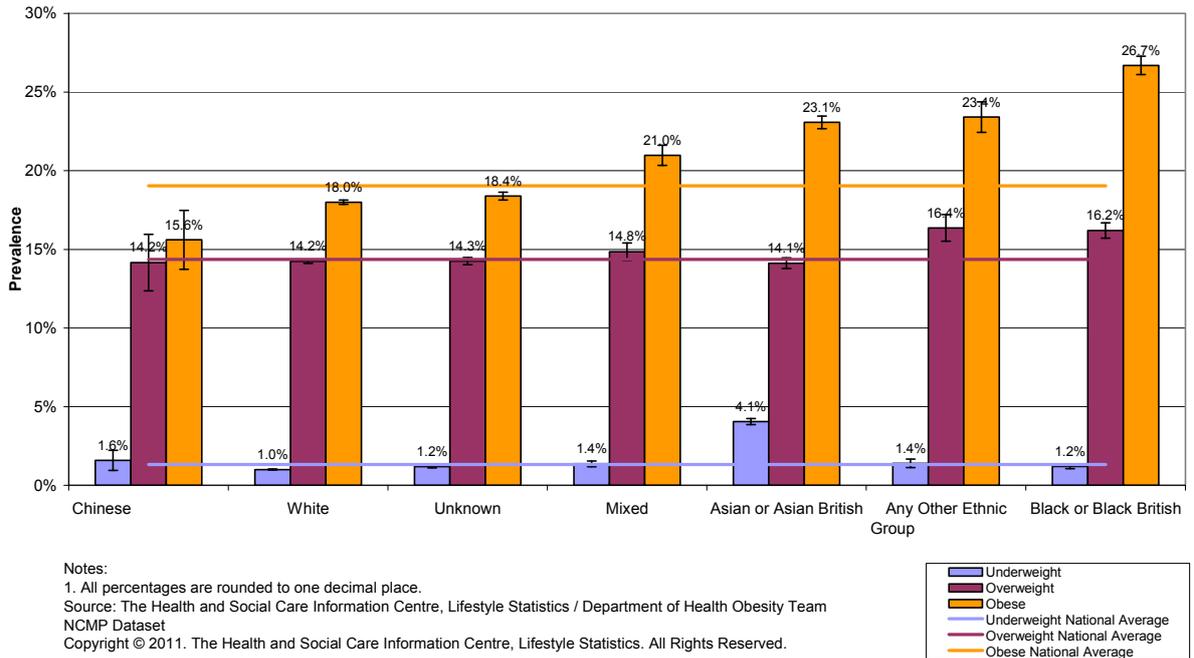
Figure 18 compares the prevalence of children who are overweight or obese ('combined overweight and obese'), with associated 95% confidence intervals, in Reception and Year 6, by ethnic category, in 2010/11.

Figure 18: Prevalence of "combined overweight and obese" children, by ethnic category, England, 2010/11

Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team
NCMP Dataset
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Key findings:

- Obesity prevalence is significantly higher than the national average for children in both school years in the ethnic groups 'Asian or Asian British', 'Any Other Ethnic Group', and 'Black or Black British' and for the ethnic group 'Mixed' in Year 6

- Obesity prevalence is significantly lower than the national average for children in both years in the 'White' ethnic group; and for 'Chinese' in Reception;

There are known associations between ethnicity and area deprivation.[18] 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.

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[18] 'National Child Measurement Programme; Detailed Analysis of the 2006/07 National Dataset'
www.noo.org.uk/uploads/doc168_2_NOO_NCMP_report230608.pdf

3.3.7 Prevalence by rural/urban classification

Collection of the home postcode of participating children has been a formal requirement since 2008/09. In 2010/11 of the 1,036,608 children for whom valid measurements were uploaded to the NCMP Database, 99.7% of records included a valid home postcode.

To anonymise the data, postcodes were aggregated to the larger areas of Lower Super Output Area (LSOA) when PCTs uploaded their data to the NCMP database, to ensure that the NHS IC did not hold home postcode for any child.

Each record was assigned a rural/urban classification[19] according to the settlement form of the LSOA of the child.

Figures 19 and 20 show, for Reception and Year 6 respectively, the prevalence of underweight, overweight and obese children, by rural/urban classification, in England.

Figure 19: Prevalence of underweight, overweight and obese children in Reception, by rural/urban classification, England, 2010/11

Notes:
1. All percentages are rounded to one decimal place.
Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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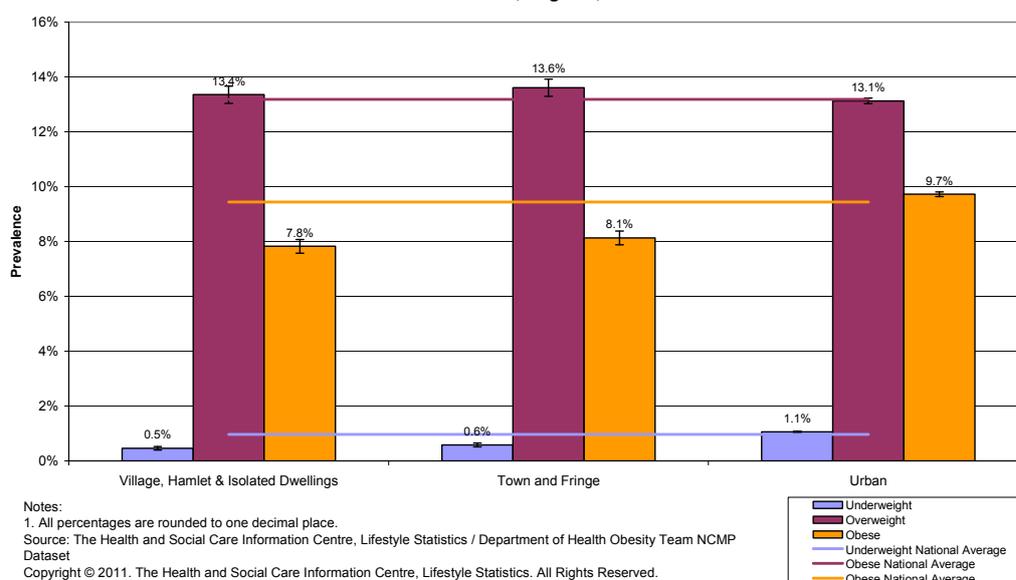
[19] The Office for National Statistics (ONS) produced the Rural and Urban Classification in consultation with the Department for Environment, Food and Rural Affairs, the Department for Communities and Local Government and the Countryside Agency. Areas are defined through two measures:

- settlement form: dispersed dwellings, hamlet, village, small town, urban fringe and urban (>10,000 population);
- sparsity - each hectare grid square is assigned a sparsity score based on the number of households in surrounding hectare squares up to a distance of 30 km.

The analyses in this report have combined 'sparse' with 'less sparse' and classifications are purely based on settlement form.

Further details are available at: www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/rural-urban-definition-and-la/rural-and-urban-statistics-guidance-notes.pdf

Figure 20: Prevalence of underweight, overweight and obese children in Year 6, by rural/urban classification, England, 2010/11
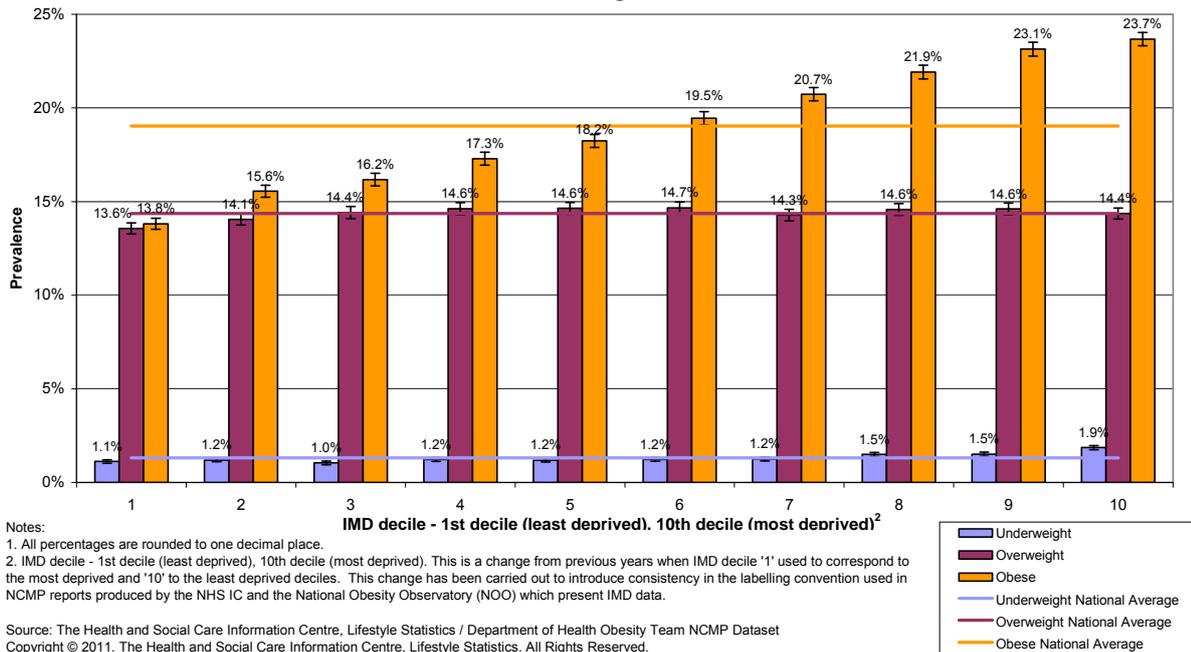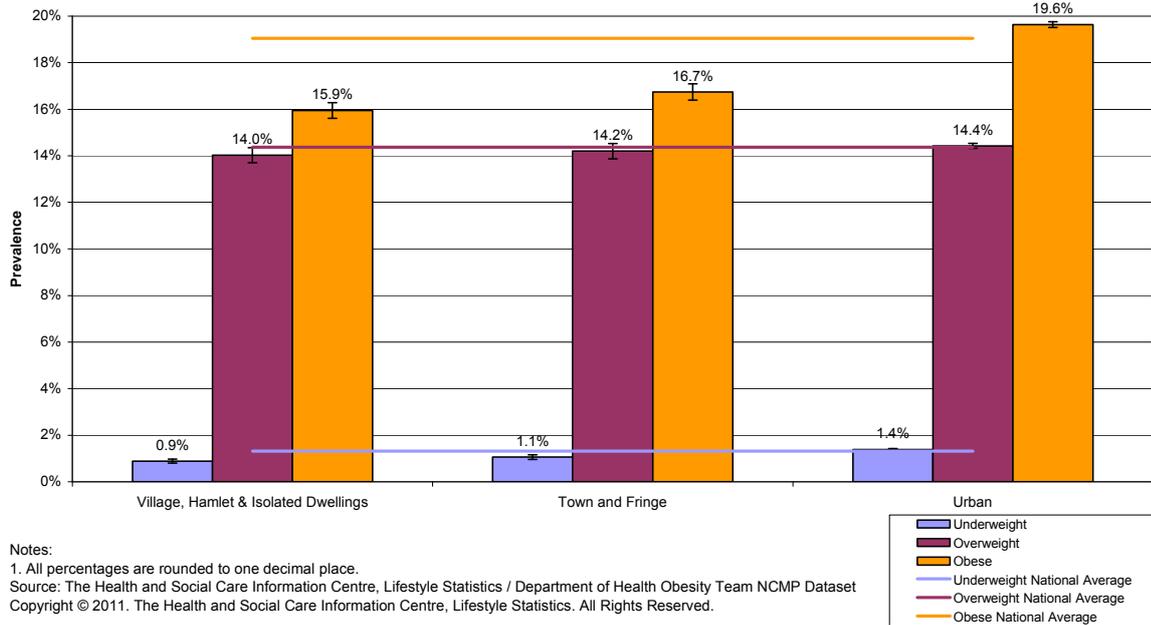
Figure 21 compares the prevalence of children who are overweight or obese ('combined overweight and obese'), with associated 95% confidence intervals, in Reception and Year 6, by rural/urban classification, in 2010/11.

Figure 21: Prevalence of "combined overweight and obese" children, by rural/urban classification, England, 2010/11
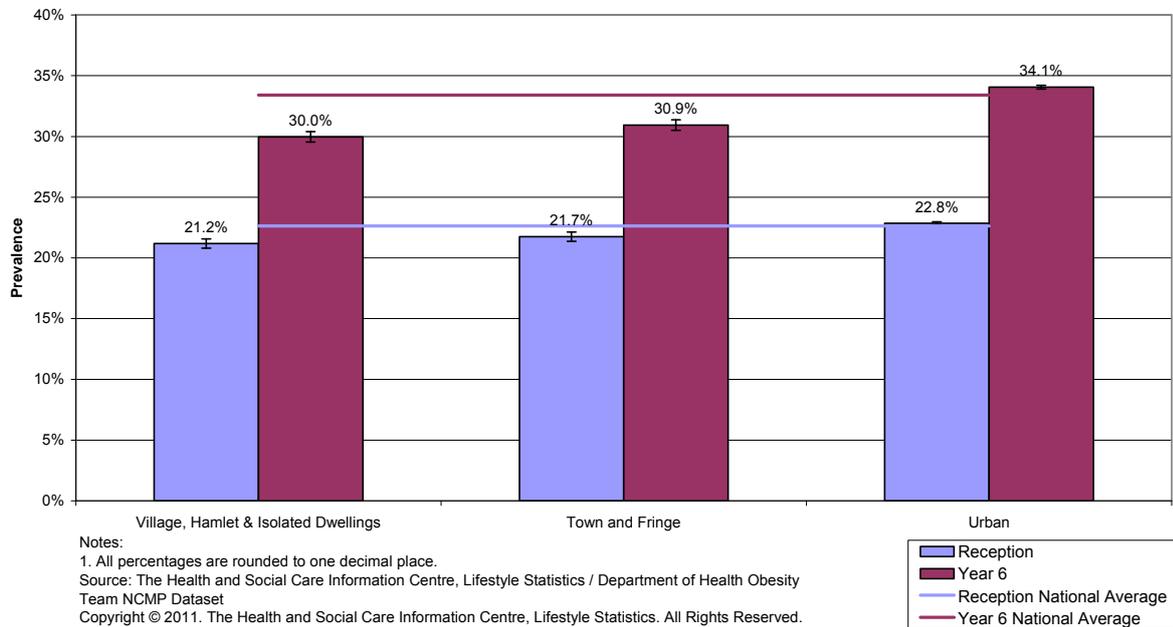
Key findings for 2010/11:

- As was the case in previous years, obesity prevalence was significantly higher in urban areas than in rural areas for each age group. The obesity prevalence among Reception year children living in urban areas was 9.7% compared with 8.1% and 7.8% living in town and village areas respectively. Similarly, obesity prevalence among Year 6 children living in urban areas was 19.6% compared with 16.7% and 15.9% living in town and village areas respectively.

- The prevalence of underweight children is significantly higher in urban areas than in rural areas for both age groups. In Reception year, 1.1% of children in urban areas were underweight compared to 0.6% in town and 0.5% in village areas. In Year 6 these percentages were 1.4%, 1.1% and 0.9% respectively;

The National Obesity Observatory's 2006/07[20] and 2007/08[21] reports showed that confounding factors exist, and that variation in child obesity prevalence between urban and rural areas can possibly be explained by differences in the degree of deprivation and the ethnic mix in such areas.

3.3.8 Prevalence by Office for National Statistics Area Classification (ONS-AC)

NCMP data has been analysed using the Office for National Statistics Area Classification (ONS-AC). The ONS-AC categorises geographic areas based on a wide variety of common characteristics and provides a simple approach that can be used at local level to target interventions or resources.

The analysis within this report has demonstrated how obesity prevalence varies across socioeconomic and ethnic groups, and between urban 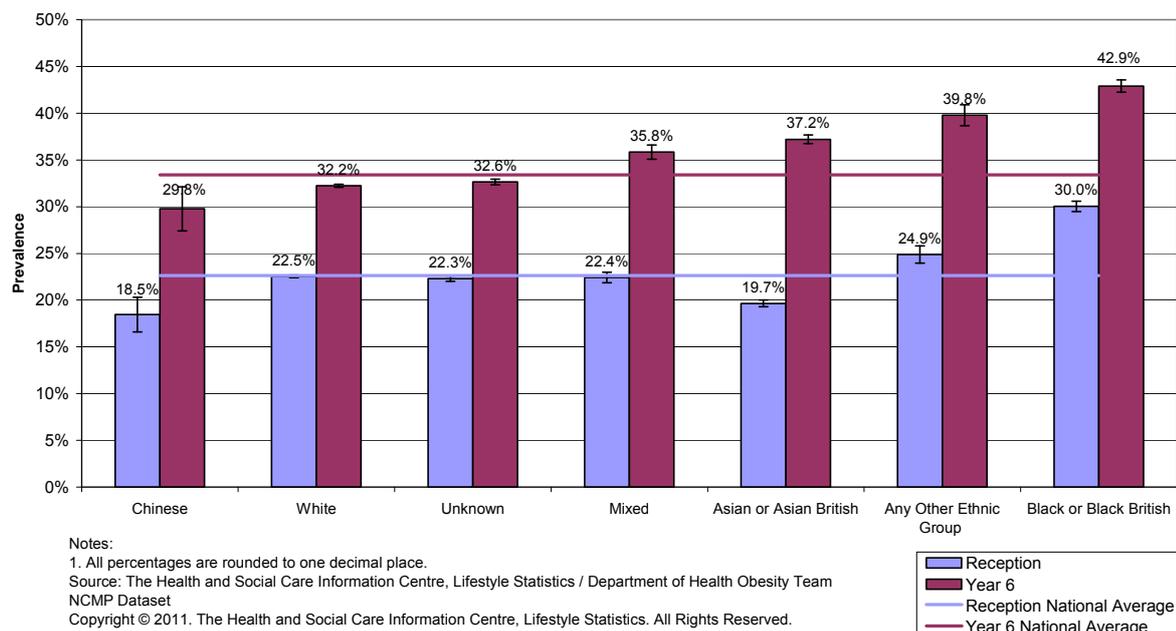and rural areas. However it has also been noted that there are close links between these variables; the most deprived communities are often found within urban areas and frequently have a high proportion of residents from non-White British ethnic groups.

The ONS-AC is a system of population stratification that categorises local areas based on a range of sociodemographic characteristics, including deprivation, ethnicity, and urban/rural environment[22]. The categories are named in a way that describes the type of population predominant in those areas, for example 'Disadvantaged Urban Communities' or 'Professional City Life'.

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[20] 'National Child Measurement Programme: Detailed Analysis of the 2006/07 National Dataset': www.noo.org.uk/uploads/doc168_2_NOO_NCMP_report230608.pdf

[21] 'National Child Measurement Programme: Detailed Analysis of the 2007/08 National Dataset' available at: www.noo.org.uk/uploads/doc168_2_noo_NCMPreport1_110509.pdf

[22] National Statistics 2011 Area Classification available at: www.neighbourhood.statistics.gov.uk/dissemination/Info.do?page=nessgeography/areaclassification/area-classification.htm

It is possible to calculate obesity prevalence for ONS-AC categories using NCMP data. This approach identifies those populations or communities with the highest risk of obesity prevalence and highlights the combined impact of deprivation, ethnicity and urban/rural environment.

Figures 22 and 23 show obesity prevalence for the ONS-AC categories in the 2010/11 NCMP data. This analysis uses the seven 'supergroups' provided within the ONS-AC at LSOA level. Categories have been assigned to individual children based on the LSOA of residence.

Figure 22: Prevelence of obese children in Reception, by ONS-AC supergroup, England 2010/11
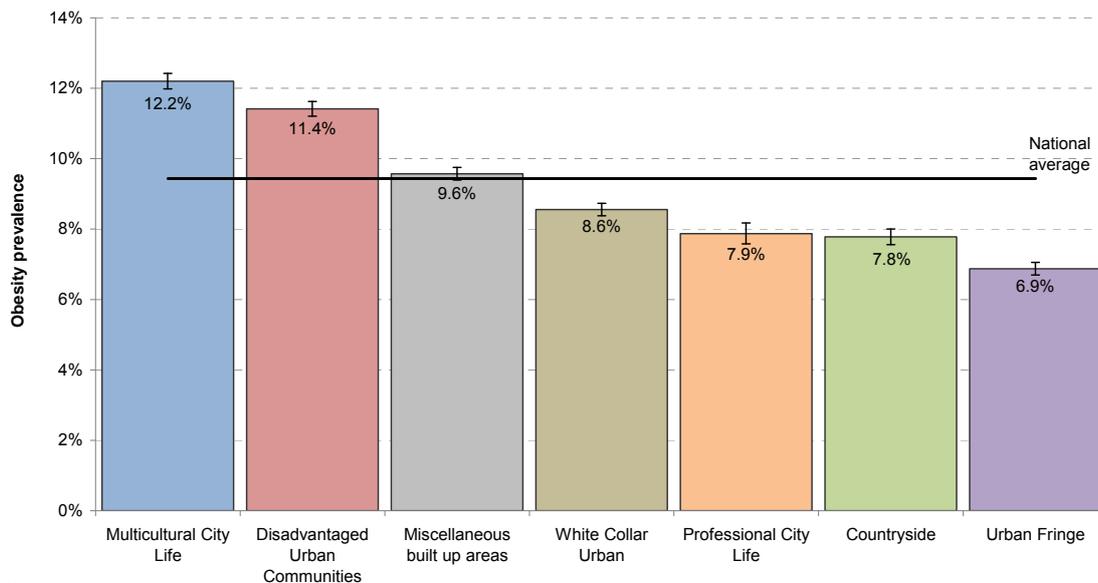
Notes:
1. All percentages are rounded to one decimal place.

Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Figure 23: Prevelence of obese children in Year 6, by ONS-AC supergroup, England 2010/11
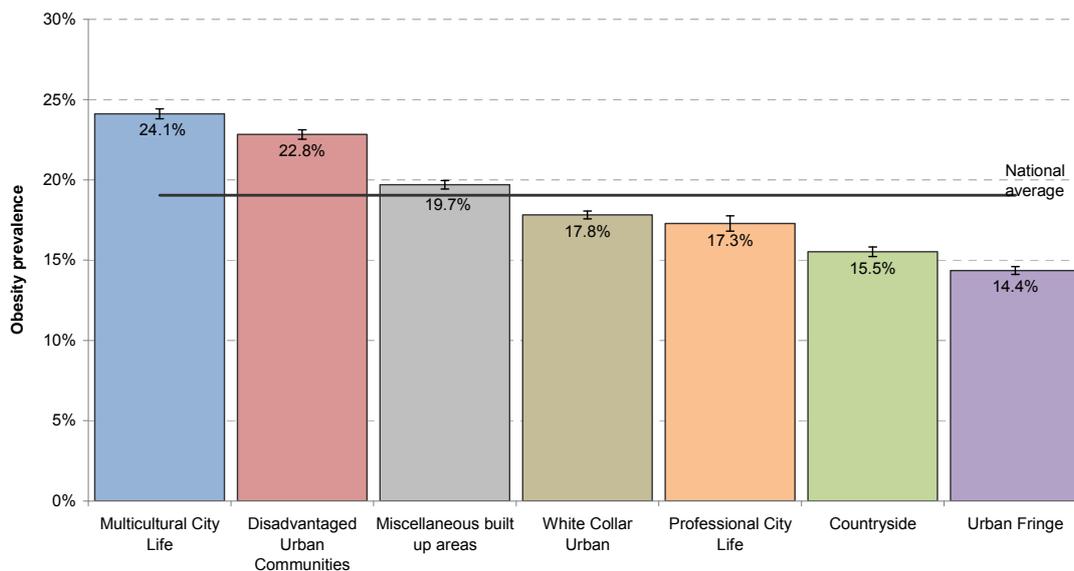
Notes:
1. All percentages are rounded to one decimal place.

Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Key findings for 2010/11:

- The pattern of obesity prevalence by ONS-AC supergroup is consistent across both school years.
- Obesity prevalence was highest in areas classed as Multicultural City Life, followed by areas classed as being Disadvantaged Urban Communities.
- Urban Fringe areas had the lowest obesity prevalence.

Previous analysis[23] has shown that the differences in obesity prevalence between ONS-AC groups are similar for boys and girls and across the nine Government Office Regions (GORs). The relative differences between ONS-AC categories have also remained constant over time.

The ONS-AC categories can be mapped to LSOAs, and this information can be used by local areas to assist in the targeting of resources to tackle child obesity. There is also potential to use the ONS-AC at local level to detect differences in the trend in child obesity prevalence over time within PCTs or LAs.

The National Obesity Observatory have produced a report 'NCMP: Analysis using the ONS Area Classification' which provides more information on his approach[23].

3.3 Comparison of results with the Health Survey for England

The Health Survey for England (HSE)[24] is a series of sample-based surveys focusing on a range of health indicators including obesity in children. Analysis to consider where meaningful comparisons could be made between NCMP data and the child obesity data contained within HSE was carried out in previous years. This resulted in comparisons between 2007/08 NCMP and HSE 2007 data, and between 2008/09 NCMP and HSE 2008 data being made. The findings from this can be found in Chapter 13 of the HSE 2008.[25] Due to the smaller sample sizes associated with HSE 2009, comparisons were not attempted between 2009/10 NCMP and HSE 2009 data.

This year, a comparison between 2010/11 NCMP and HSE 2010 data will be undertaken by the National Obesity Observatory (NOO) and included in their report (expected to be published in Spring 2012).

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[23] 'NCMP: Analysis using ONS Area Classification' (www.noo.org.uk/gsf.php5?f=11678&fv=12524)

[24] Health Survey for England (www.ic.nhs.uk/hse)

[25] 'Health Survey for England 2008: Physical activity and fitness' (www.ic.nhs.uk/pubs/hse08physicalactivity)

4 Further sources of information

This chapter provides links to other sources of data on obesity in children that may be of interest to users of the NCMP report and data. A very brief description of the data available is presented here along with a link to the data source.

Health Survey for England

The Health Survey for England (HSE) is an annual report that presents information on child BMI and obesity for children in England aged 2 to 15. Information is presented at England level and in some years by Strategic Health Authority. The HSE 2010 is expected to be published by the NHS Information Centre on 15th December 2011.

Health Survey for England trend tables

The HSE trend tables are published alongside the HSE main report and provide time series data on child height, weight, Body Mass Index (BMI) and obesity for children aged 2 to 15. Information is available for 1995 to 2009, with trend tables updated for 2010 expected to be published alongside the main report on 15th December 2011.

The HSE publications can be accessed from the following link:

www.ic.nhs.uk/hse

National Obesity Observatory (NOO)

The National Obesity Observatory (NOO) provide a number of resources relating to the NCMP and child obesity in general. NCMP resources include the child e-Atlas (a data visualisation tool contain NCMP data at PCT and LA level for all years of the NCMP), guidance for analysis of NCMP data, and a variety of reports providing detailed analysis of NCMP data. Resources relating to child obesity in general include a slide set which presents key data and information on child obesity and a simple guide to classifying body mass index in children.

All NOO resources can be accessed via the NOO website:

www.noo.org.uk

Statistics on Obesity, Physical Activity and Diet: England 2011

This compendium report brings together a wide range of information on child obesity, diet and physical activity, along with information on obesity in adults and health outcomes associated with obesity.

www.ic.nhs.uk/OPAD

Annex 1- Detailed tables

Table A shows the prevalence of underweight, healthy weight, overweight and obese children, by school year, at Primary Care Trust (PCT) and Strategic Health Authority (SHA)

Table A: Prevalence of underweight, healthy weight, overweight and obese children, with associated 95% confidence intervals, by PCT and SHA, England, 2010/11

SHA/PCT Name	SHA/PCT Code	ONS Alpha numeric code	Underweight Reception Prevalence	Underweight Reception 95% confidence interval ±	Underweight Year 6 Prevalence	Underweight Year 6 95% confidence interval ±	Healthy weight Reception Prevalence	Healthy weight Reception 95% confidence interval ±	Healthy weight Year 6 Prevalence	Healthy weight Year 6 95% confidence interval ±	Overweight Reception Prevalence	Overweight Reception 95% confidence interval ±	Overweight Year 6 Prevalence	Overweight Year 6 95% confidence interval ±	Obese Reception Prevalence	Obese Reception 95% confidence interval ±	Obese Year 6 Prevalence	Obese Year 6 95% confidence interval ±	Number of children measured Reception	Number of children measured Year 6	Participation rate Reception	Participation rate Year 6
England	**ENG**		**1.0%**	**0.0%**	**1.3%**	**0.0%**	**76.4%**	**0.1%**	**65.3%**	**0.1%**	**13.2%**	**0.1%**	**14.4%**	**0.1%**	**9.4%**	**0.1%**	**19.0%**	**0.1%**	**541,255**	**495,353**	**93.4%**	**91.8%**
North East SHA	**Q30**	**E18000001**	**0.6%**	**0.1%**	**1.0%**	**0.1%**	**75.8%**	**0.5%**	**63.3%**	**0.6%**	**13.7%**	**0.4%**	**14.2%**	**0.4%**	**9.9%**	**0.4%**	**21.4%**	**0.5%**	**27,578**	**25,282**	**97.9%**	**96.7%**
County Durham PCT	5ND	E16000085	0.5%	0.2%	1.1%	0.3%	76.6%	1.1%	62.8%	1.4%	13.4%	0.9%	14.4%	1.0%	9.5%	0.8%	21.6%	1.1%	5,222	4,917	99.2%	99.1%
Darlington PCT	5J9	E16000041	0.3%	0.3%	1.4%	0.7%	77.2%	2.4%	67.9%	2.9%	12.6%	1.9%	14.0%	2.1%	9.9%	1.7%	16.8%	2.3%	1,178	1,024	98.8%	96.2%
Gateshead PCT	5KF	E16000050	0.6%	0.3%	0.8%	0.4%	76.1%	1.9%	61.6%	2.2%	14.3%	1.6%	14.3%	1.6%	9.0%	1.3%	23.2%	1.9%	1,958	1,843	97.5%	97.7%
Hartlepool PCT	5D9	E16000019	0.6%	0.5%	0.9%	0.6%	75.8%	2.5%	60.8%	3.0%	13.5%	2.0%	12.5%	2.0%	10.0%	1.8%	25.9%	2.7%	1,086	1,036	97.8%	99.0%
Middlesbrough PCT	5KM	E16000053	0.8%	0.4%	1.4%	0.6%	76.6%	2.0%	60.5%	2.4%	13.2%	1.6%	16.4%	1.8%	9.4%	1.4%	21.8%	2.1%	1,753	1,553	98.1%	95.5%
Newcastle PCT	5D7	E16000017	0.7%	0.3%	1.0%	0.4%	73.3%	1.7%	60.6%	2.0%	15.3%	1.4%	13.4%	1.4%	10.6%	1.2%	24.9%	1.7%	2,726	2,402	97.5%	95.0%
North Tyneside PCT	5D8	E16000018	0.4%	0.3%	0.6%	0.4%	74.2%	1.8%	65.3%	2.1%	15.1%	1.5%	14.2%	1.6%	10.3%	1.3%	19.9%	1.8%	2,264	1,900	98.0%	96.6%
Northumberland Care Trust	TAC	E17000001	0.6%	0.3%	1.0%	0.4%	75.5%	1.5%	65.4%	1.7%	13.7%	1.2%	15.0%	1.3%	10.2%	1.1%	18.7%	1.4%	3,165	3,086	96.7%	94.0%
Redcar & Cleveland PCT	5QR	E16000146	0.9%	0.5%	1.4%	0.6%	75.4%	2.2%	67.1%	2.5%	14.4%	1.8%	12.7%	1.8%	9.4%	1.5%	18.8%	2.1%	1,497	1,391	96.0%	93.6%
South Tyneside PCT	5KG	E16000051	0.9%	0.5%	1.6%	0.6%	77.2%	2.1%	62.2%	2.5%	11.6%	1.6%	13.8%	1.8%	10.3%	1.6%	22.4%	2.2%	1,481	1,445	97.3%	98.0%
North Tees PCT	5E1	E16000020	0.8%	0.4%	0.7%	0.4%	76.3%	1.7%	64.9%	2.1%	13.1%	1.4%	13.7%	1.5%	9.8%	1.2%	20.7%	1.8%	2,284	1,960	99.0%	98.8%
Sunderland Teaching PCT	5KL	E16000052	0.4%	0.2%	1.0%	0.4%	75.8%	1.5%	62.5%	1.8%	13.7%	1.2%	14.6%	1.3%	10.2%	1.1%	21.9%	1.6%	2,964	2,725	97.9%	96.1%
North West SHA	**Q31**	**E18000002**	**0.9%**	**0.1%**	**1.2%**	**0.1%**	**75.8%**	**0.3%**	**64.5%**	**0.4%**	**13.6%**	**0.2%**	**14.6%**	**0.3%**	**9.6%**	**0.2%**	**19.7%**	**0.3%**	**76,086**	**69,669**	**94.8%**	**93.2%**
Ashton, Leigh & Wigan PCT	5HG	E16000032	0.4%	0.2%	1.1%	0.4%	75.0%	1.5%	65.1%	1.7%	14.2%	1.2%	14.6%	1.3%	10.4%	1.0%	19.3%	1.4%	3,415	2,916	95.6%	86.7%
Blackburn with Darwen Teaching Care Trust Plus	TAP	E17000006	2.1%	0.6%	3.2%	0.8%	76.2%	1.9%	65.0%	2.2%	11.9%	1.4%	13.1%	1.5%	9.9%	1.3%	18.6%	1.8%	1,950	1,859	97.2%	96.4%
Blackpool PCT	5HP	E16000033	0.3%	0.3%	1.0%	0.5%	75.7%	2.2%	66.6%	2.4%	14.5%	1.8%	12.5%	1.7%	9.5%	1.5%	19.8%	2.0%	1,515	1,463	97.2%	93.7%
Bolton PCT	5HQ	E16000148	1.7%	0.4%	2.5%	0.6%	76.5%	1.4%	61.8%	1.7%	12.8%	1.1%	14.5%	1.2%	9.0%	1.0%	21.2%	1.4%	3,304	3,059	94.9%	94.9%
Bury PCT	5JX	E16000043	1.4%	0.5%	1.4%	0.5%	77.4%	1.8%	63.5%	2.2%	12.2%	1.4%	14.9%	1.6%	9.0%	1.2%	20.2%	1.8%	2,131	1,904	98.7%	98.2%
Central & Eastern Cheshire PCT	5NP	E16000039	0.7%	0.2%	0.8%	0.3%	78.1%	1.2%	68.0%	1.4%	12.8%	1.0%	13.7%	1.0%	8.4%	0.8%	17.5%	1.1%	4,727	4,410	96.0%	93.4%
Central Lancashire PCT	5NG	E16000088	0.9%	0.3%	1.3%	0.3%	77.0%	1.2%	66.2%	1.4%	13.5%	0.9%	13.9%	1.0%	8.6%	0.8%	18.5%	1.1%	5,026	4,405	93.3%	92.7%
Cumbria PCT	5NE	E16000086	0.3%	0.2%	1.0%	0.3%	74.9%	1.3%	62.9%	1.4%	15.1%	1.1%	15.3%	1.1%	9.7%	0.9%	20.8%	1.2%	4,246	4,392	86.3%	87.9%
East Lancashire PCT	5NH	E16000089	0.8%	0.3%	1.5%	0.4%	75.1%	1.3%	67.4%	1.4%	14.0%	1.0%	13.9%	1.0%	10.1%	0.9%	17.3%	1.1%	4,580	4,200	98.1%	96.4%
Halton & St. Helens PCT	5NM	E16000093	0.5%	0.2%	0.9%	0.4%	74.2%	1.5%	61.6%	1.8%	14.3%	1.2%	14.7%	1.3%	10.9%	1.1%	22.8%	1.5%	2,597	2,890	92.2%	88.6%
Heywood, Middleton & Rochdale PCT	5NQ	E16000096	1.2%	0.4%	1.2%	0.4%	74.7%	1.7%	62.0%	2.0%	12.7%	1.3%	16.1%	1.5%	11.4%	1.2%	20.7%	1.6%	2,597	2,366	96.8%	97.7%
Knowsley PCT	5J4	E16000038	0.5%	0.3%	0.7%	0.4%	74.1%	2.0%	59.7%	2.4%	15.3%	1.7%	15.2%	1.8%	10.1%	1.4%	24.4%	2.1%	1,776	1,603	97.7%	96.2%
Liverpool PCT	5NL	E16000092	1.8%	0.4%	1.0%	0.3%	72.4%	1.3%	61.5%	1.5%	13.7%	1.0%	15.4%	1.1%	12.1%	1.0%	22.1%	1.3%	4,454	3,946	96.6%	90.7%
Manchester PCT	5NT	E16000149	1.1%	0.3%	1.3%	0.3%	73.6%	1.2%	60.0%	1.4%	14.3%	0.9%	15.1%	1.0%	11.0%	0.8%	23.7%	1.2%	5,495	4,517	92.4%	97.8%
North Lancashire PCT	5NF	E16000087	0.5%	0.3%	1.4%	0.4%	75.6%	1.6%	67.0%	1.8%	15.0%	1.4%	14.7%	1.3%	8.9%	1.1%	16.9%	1.4%	2,650	2,640	90.1%	86.7%
Oldham PCT	5J6	E16000039	1.8%	0.5%	2.2%	0.6%	75.9%	1.5%	66.6%	1.8%	12.4%	1.2%	13.9%	1.3%	9.9%	1.1%	17.3%	1.4%	3,015	2,706	93.3%	90.4%
Salford PCT	5F5	E16000025	0.8%	0.3%	0.8%	0.4%	76.4%	1.6%	61.1%	2.0%	13.0%	1.3%	14.9%	1.5%	9.9%	1.2%	23.2%	1.8%	2,550	2,198	95.4%	94.9%
Sefton PCT	5NJ	E16000090	0.4%	0.2%	0.6%	0.3%	75.0%	1.6%	63.7%	1.8%	14.2%	1.3%	15.0%	1.3%	10.4%	1.1%	20.7%	1.5%	2,826	2,754	97.2%	95.1%
Stockport PCT	5F7	E16000026	1.5%	0.4%	1.2%	0.4%	80.0%	1.5%	68.2%	1.7%	11.0%	1.1%	14.1%	1.3%	7.5%	1.0%	16.5%	1.4%	2,885	2,877	90.3%	94.2%
Tameside & Glossop PCT	5LH	E16000062	0.5%	0.2%	1.2%	0.4%	76.8%	1.5%	65.1%	1.8%	13.6%	1.2%	14.4%	1.3%	9.2%	1.0%	19.3%	1.5%	3,014	2,655	98.0%	94.7%
Trafford PCT	5NR	E16000097	1.3%	0.4%	0.9%	0.4%	78.3%	1.6%	68.6%	1.9%	12.7%	1.3%	14.2%	1.4%	7.8%	1.0%	16.4%	1.5%	2,589	2,239	97.3%	92.3%
Warrington PCT	5J2	E16000037	0.5%	0.3%	0.9%	0.4%	78.5%	1.7%	66.6%	2.0%	13.3%	1.4%	15.1%	1.5%	7.7%	1.1%	17.5%	1.6%	2,235	2,142	95.9%	92.0%
Western Cheshire PCT	5NN	E16000094	0.3%	0.2%	0.7%	0.3%	77.4%	1.7%	64.2%	2.0%	13.6%	1.4%	14.8%	1.5%	8.7%	1.1%	20.3%	1.6%	2,359	2,287	97.1%	96.2%
Wirral PCT	5NK	E16000091	0.5%	0.2%	1.0%	0.3%	74.9%	1.4%	65.2%	1.6%	15.2%	1.2%	15.2%	1.2%	9.4%	1.0%	18.6%	1.3%	3,512	3,241	98.1%	96.5%

SHA/PCT Name	SHA/PCT Code	ONS Alpha numeric code	Underweight				Healthy weight				Overweight				Obese				Number of children measured		Participation rate	
			Reception		Year 6		Reception		Year 6		Reception		Year 6		Reception		Year 6					
			Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Reception	Year 6	Reception	Year 6
England	**ENG**		**1.0%**	**0.0%**	**1.3%**	**0.0%**	**76.4%**	**0.1%**	**65.3%**	**0.1%**	**13.2%**	**0.1%**	**14.4%**	**0.1%**	**9.4%**	**0.1%**	**19.0%**	**0.1%**	**541,255**	**495,353**	**93.4%**	**91.8%**
Yorkshire & Humber SHA	**Q32**	**E18000003**	**1.0%**	**0.1%**	**1.4%**	**0.1%**	**76.9%**	**0.3%**	**65.5%**	**0.4%**	**13.0%**	**0.3%**	**14.0%**	**0.3%**	**9.1%**	**0.2%**	**19.2%**	**0.3%**	**57,251**	**51,572**	**95.0%**	**93.6%**
Barnsley PCT	5JE	E16000042	0.7%	0.3%	1.0%	0.4%	77.9%	1.7%	65.0%	2.0%	13.3%	1.4%	14.3%	1.5%	8.1%	1.1%	19.7%	1.7%	2,393	2,160	91.3%	91.6%
Bradford & Airedale PCT	5NY	E16000102	1.9%	0.3%	2.4%	0.4%	76.3%	1.0%	62.1%	1.2%	12.3%	0.8%	13.6%	0.9%	9.4%	0.7%	21.8%	1.1%	6,734	5,814	91.3%	90.5%
Calderdale PCT	5J6	E16000040	1.2%	0.4%	1.6%	0.5%	78.6%	1.6%	65.4%	1.9%	12.2%	1.3%	15.2%	1.5%	8.0%	1.1%	17.8%	1.6%	2,518	2,337	96.3%	95.4%
Doncaster PCT	5N5	E16000078	0.6%	0.3%	0.8%	0.3%	73.6%	1.5%	66.0%	1.7%	15.1%	1.2%	14.6%	1.3%	10.7%	1.0%	18.6%	1.4%	3,373	2,843	97.1%	90.5%
East Riding of Yorkshire PCT	5NW	E16000100	0.6%	0.3%	0.8%	0.3%	75.2%	1.5%	67.3%	1.6%	14.7%	1.2%	14.2%	1.2%	9.5%	1.0%	17.7%	1.3%	3,187	3,268	97.5%	97.2%
Hull PCT	5NX	E16000101	0.8%	0.3%	0.6%	0.3%	75.9%	1.6%	61.7%	1.9%	13.5%	1.2%	14.6%	1.4%	9.8%	1.1%	23.0%	1.7%	2,884	2,406	97.1%	96.4%
Kirklees PCT	5N2	E16000075	1.6%	0.3%	2.0%	0.4%	77.7%	1.1%	65.8%	1.4%	11.9%	0.9%	13.1%	1.0%	8.8%	0.8%	19.1%	1.2%	5,057	4,313	96.6%	93.0%
Leeds PCT	5N1	E16000082	0.7%	0.2%	1.4%	0.3%	76.3%	0.9%	64.7%	1.1%	13.5%	0.7%	14.0%	0.8%	9.5%	0.6%	19.9%	0.9%	8,240	7,268	94.6%	96.5%
North East Lincolnshire Care Trust Plus	TAN	E17000005	0.8%	0.4%	1.0%	0.5%	74.9%	2.0%	64.7%	2.4%	13.6%	1.6%	15.3%	1.8%	10.7%	1.4%	18.9%	1.9%	1,784	1,579	97.5%	95.9%
North Lincolnshire PCT	5EF	E16000021	0.8%	0.4%	0.7%	0.4%	74.9%	2.0%	67.3%	2.3%	13.8%	1.6%	14.6%	1.7%	10.4%	1.4%	17.4%	1.9%	1,820	1,571	96.2%	87.3%
North Yorkshire & York PCT	5NV	E16000099	1.1%	0.2%	1.1%	0.2%	79.9%	0.9%	70.3%	1.1%	12.1%	0.7%	13.5%	0.8%	7.0%	0.6%	15.2%	0.9%	7,320	6,821	93.5%	92.3%
Rotherham PCT	5H8	E16000080	1.7%	0.5%	1.9%	0.5%	78.6%	1.5%	63.0%	1.7%	11.3%	1.1%	13.6%	1.2%	8.3%	1.0%	21.6%	1.5%	2,973	2,953	98.2%	96.8%
Sheffield PCT	5N4	E16000077	0.9%	0.2%	1.3%	0.3%	76.4%	1.1%	64.2%	1.3%	12.8%	0.9%	14.2%	0.9%	10.0%	0.8%	20.2%	1.1%	5,525	5,230	95.8%	96.5%
Wakefield District PCT	5N3	E16000076	0.6%	0.3%	0.8%	0.3%	76.6%	1.4%	67.4%	1.7%	13.4%	1.1%	13.7%	1.2%	9.4%	1.0%	18.1%	1.4%	3,443	3,009	93.6%	87.9%
East Midlands SHA	**Q33**	**E18000004**	**0.9%**	**0.1%**	**1.4%**	**0.1%**	**77.0%**	**0.4%**	**66.1%**	**0.4%**	**13.2%**	**0.3%**	**14.2%**	**0.3%**	**9.0%**	**0.3%**	**18.3%**	**0.4%**	**44,751**	**43,340**	**92.4%**	**92.2%**
Bassetlaw PCT	5ET	E16000023	0.3%	0.3%	1.1%	0.6%	76.8%	2.6%	65.8%	2.9%	13.9%	2.1%	13.9%	2.1%	9.0%	1.7%	19.3%	2.4%	1,027	1,043	90.3%	88.2%
Derby City PCT	5N7	E16000080	1.0%	0.4%	1.5%	0.5%	77.3%	1.6%	64.5%	1.9%	12.1%	1.2%	15.1%	1.4%	9.7%	1.1%	18.9%	1.5%	2,704	2,548	91.6%	92.6%
Derbyshire County PCT	5N6	E16000079	0.5%	0.2%	1.0%	0.2%	76.9%	1.0%	64.9%	1.1%	14.1%	0.8%	14.8%	0.8%	8.5%	0.7%	19.3%	0.9%	6,962	7,269	91.3%	95.9%
Leicester City PCT	5PC	E16000113	2.1%	0.5%	3.5%	0.6%	75.0%	1.4%	63.4%	1.6%	12.4%	1.1%	12.5%	1.1%	10.5%	1.0%	20.6%	1.4%	6,938	6,525	92.3%	92.9%
Leicestershire County & Rutland PCT	5PA	E16000112	1.2%	0.3%	1.6%	0.3%	80.0%	0.9%	70.3%	1.1%	11.7%	0.8%	13.0%	0.8%	7.1%	0.6%	15.1%	0.9%	6,938	6,525	94.3%	90.7%
Lincolnshire PCT	5N9	E16000082	0.5%	0.2%	1.0%	0.2%	75.7%	1.0%	63.7%	1.1%	14.4%	0.8%	15.1%	0.8%	9.4%	0.7%	20.2%	0.9%	6,554	6,943	90.9%	94.4%
Northampton PCT	5PD	E16000114	0.5%	0.2%	1.2%	0.3%	75.9%	1.0%	67.5%	1.1%	13.8%	0.8%	14.2%	0.8%	9.8%	0.7%	17.1%	0.9%	7,546	7,121	96.9%	92.7%
Nottingham City PCT	5EM	E16000022	1.3%	0.4%	1.9%	0.5%	73.5%	1.6%	61.7%	1.9%	14.3%	1.3%	14.2%	1.4%	10.9%	1.1%	22.2%	1.6%	2,879	2,545	90.9%	91.5%
Nottinghamshire County PCT	5N8	E16000081	1.0%	0.2%	1.3%	0.3%	78.9%	1.0%	68.4%	1.2%	12.2%	0.8%	14.2%	0.9%	7.9%	0.7%	16.1%	0.9%	6,488	6,058	89.7%	87.0%
West Midlands SHA	**Q34**	**E18000005**	**1.1%**	**0.1%**	**1.5%**	**0.1%**	**75.3%**	**0.3%**	**63.4%**	**0.4%**	**13.5%**	**0.3%**	**14.6%**	**0.3%**	**10.1%**	**0.2%**	**20.5%**	**0.3%**	**59,795**	**55,997**	**94.7%**	**92.9%**
Birmingham East & North PCT	5PG	E16000117	1.4%	0.4%	1.8%	0.4%	77.0%	1.3%	60.9%	1.4%	11.6%	1.0%	14.6%	1.0%	10.0%	0.9%	22.7%	1.2%	4,350	4,368	91.3%	91.7%
Coventry Teaching PCT	5MD	E16000070	1.1%	0.3%	1.4%	0.4%	74.7%	1.4%	63.3%	1.6%	13.5%	1.1%	15.1%	1.2%	10.7%	1.0%	20.2%	1.4%	3,726	3,395	96.5%	97.9%
Dudley PCT	5PE	E16000115	0.7%	0.3%	1.1%	0.3%	74.7%	1.2%	62.6%	1.6%	13.8%	1.1%	14.0%	1.2%	10.7%	1.0%	22.4%	1.4%	3,558	3,411	99.6%	98.2%
Heart of Birmingham Teaching PCT	5MX	E16000073	3.0%	0.5%	3.5%	0.6%	73.7%	1.4%	56.4%	1.5%	11.0%	0.9%	14.8%	1.1%	12.4%	0.9%	25.3%	1.3%	4,774	4,230	96.4%	93.8%
Herefordshire PCT	5CN	E16000015	0.5%	0.3%	0.7%	0.4%	77.0%	2.1%	66.4%	2.4%	13.4%	1.7%	14.8%	1.8%	9.2%	1.4%	18.2%	2.0%	1,546	1,502	89.9%	83.4%
North Staffordshire PCT	5PH	E16000118	0.7%	0.4%	1.0%	0.4%	75.4%	1.9%	65.8%	2.1%	13.7%	1.5%	14.5%	1.6%	10.2%	1.3%	18.7%	1.7%	1,958	1,917	98.0%	92.2%
Sandwell PCT	5PF	E16000116	1.6%	0.4%	1.4%	0.4%	75.0%	1.3%	58.2%	1.6%	12.0%	1.0%	14.5%	1.2%	11.4%	1.0%	25.9%	1.5%	3,999	3,452	99.2%	96.3%
Shropshire County PCT	5M2	E16000065	0.4%	0.3%	0.9%	0.4%	75.7%	1.8%	67.4%	1.8%	14.8%	1.5%	14.4%	1.4%	9.1%	1.2%	17.3%	1.5%	2,226	2,518	87.1%	87.6%
Solihull PCT	5QW	E17000004	0.9%	0.4%	1.2%	0.5%	77.8%	1.7%	72.3%	1.9%	13.2%	1.4%	12.4%	1.4%	8.1%	1.1%	14.1%	1.5%	2,366	2,157	93.4%	89.6%
South Birmingham PCT	5M1	E16000064	1.3%	0.3%	1.2%	0.4%	73.1%	1.4%	61.3%	1.7%	15.4%	1.1%	15.6%	1.2%	10.2%	0.9%	21.9%	1.4%	3,936	3,328	99.0%	95.1%
South Staffordshire PCT	5PK	E16000120	0.7%	0.2%	1.0%	0.3%	76.2%	1.1%	65.2%	1.3%	13.9%	0.9%	15.0%	0.9%	9.2%	0.7%	18.8%	1.0%	5,906	5,553	89.9%	87.2%
Stoke on Trent PCT	5PJ	E16000119	0.7%	0.3%	1.1%	0.4%	73.8%	1.6%	62.6%	1.9%	14.8%	1.3%	14.9%	1.4%	10.7%	1.1%	21.3%	1.6%	2,892	2,496	99.8%	99.8%
Telford & Wrekin PCT	5MK	E16000071	0.3%	0.3%	0.9%	0.4%	74.8%	2.2%	65.7%	2.3%	14.5%	1.8%	14.8%	1.7%	10.4%	1.5%	18.7%	1.9%	1,533	1,704	79.8%	87.5%
Walsall Teaching PCT	5M3	E16000066	1.6%	0.4%	2.2%	0.5%	75.6%	1.4%	61.5%	1.7%	13.0%	1.1%	13.9%	1.2%	9.8%	1.0%	22.4%	1.5%	3,443	3,168	98.6%	97.3%
Warwickshire PCT[1]	5PM	E16000122	0.8%	0.2%	1.5%	0.3%	78.9%	1.1%	68.2%	1.3%	12.5%	0.9%	14.1%	0.9%	7.8%	0.7%	16.2%	1.0%	5,457	5,274	96.9%	95.0%
Wolverhampton City PCT	5MV	E16000072	1.3%	0.4%	2.3%	0.6%	71.9%	1.7%	58.7%	1.9%	14.2%	1.3%	15.0%	1.4%	12.5%	1.2%	24.0%	1.7%	2,761	2,514	95.6%	96.2%
Worcestershire PCT	5PL	E16000121	0.4%	0.2%	0.7%	0.2%	74.4%	1.2%	65.7%	1.3%	15.7%	1.0%	15.0%	1.0%	9.5%	0.8%	18.5%	1.1%	5,364	5,010	92.9%	90.0%

| SHA/PCT Name | SHA/PCT Code | ONS Alpha numeric code | Underweight | | | | Healthy weight | | | | Overweight | | | | Obese | | | | Number of children measured | | Participation rate | |
| | | | Reception | | Year 6 | | Reception | | Year 6 | | Reception | | Year 6 | | Reception | | Year 6 | | | | | |
			Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Reception	Year 6	Reception	Year 6
England	ENG		1.0%	0.0%	1.3%	0.0%	76.4%	0.1%	65.3%	0.1%	13.2%	0.1%	14.4%	0.1%	9.4%	0.1%	19.0%	0.1%	541,255	495,353	93.4%	91.8%
East England SHA	Q35	E18000006	0.8%	0.1%	1.2%	0.1%	77.1%	0.3%	67.1%	0.4%	13.1%	0.3%	14.1%	0.3%	9.0%	0.2%	17.7%	0.3%	59,602	54,917	94.1%	91.6%
Bedfordshire PCT	5P2	E16000104	0.8%	0.3%	1.1%	0.3%	77.7%	1.2%	68.3%	1.4%	12.9%	0.9%	13.7%	1.0%	8.6%	0.8%	17.0%	1.1%	4,774	4,219	96.4%	94.0%
Cambridgeshire PCT	5PP	E16000124	0.4%	0.2%	1.0%	0.3%	78.2%	1.1%	68.8%	1.2%	13.8%	0.9%	14.1%	0.9%	7.7%	0.7%	16.1%	1.0%	5,930	5,297	93.2%	89.5%
Great Yarmouth & Waveney PCT	5PR	E16000126	0.9%	0.4%	1.4%	0.5%	71.6%	2.0%	63.2%	2.1%	15.1%	1.6%	14.7%	1.5%	12.5%	1.5%	20.7%	1.8%	1,972	2,013	94.8%	90.5%
Hertfordshire PCT	5QV	E16000150	0.8%	0.2%	1.2%	0.2%	76.5%	0.8%	69.1%	0.9%	13.7%	0.6%	13.9%	0.7%	8.9%	0.5%	15.8%	0.7%	12,051	10,300	95.3%	87.7%
Luton PCT¹	5GC	E16000029	1.7%	0.5%	2.5%	0.6%	75.2%	1.6%	62.0%	1.9%	11.9%	1.2%	13.6%	1.4%	11.2%	1.2%	21.9%	1.6%	2,797	2,448	99.3%	99.3%
Mid Essex PCT	5PX	E16000130	2.4%	0.5%	1.9%	0.4%	77.5%	1.3%	67.0%	1.5%	11.5%	1.0%	13.7%	1.1%	8.7%	0.9%	17.4%	1.2%	3,744	3,666	93.5%	93.4%
Norfolk PCT	5PQ	E16000125	0.5%	0.2%	0.8%	0.2%	77.6%	1.0%	66.6%	1.2%	13.0%	0.8%	14.4%	0.9%	8.9%	0.7%	18.1%	0.9%	6,206	6,337	86.8%	92.0%
North East Essex PCT	5PW	E16000129	0.9%	0.3%	1.4%	0.4%	77.7%	1.5%	65.5%	1.7%	12.2%	1.2%	14.4%	1.3%	9.3%	1.0%	18.7%	1.4%	2,998	2,951	95.4%	95.0%
Peterborough PCT	5PN	E16000123	1.0%	0.4%	1.9%	0.6%	76.8%	1.7%	65.3%	2.1%	12.3%	1.3%	13.2%	1.5%	9.9%	1.2%	19.6%	1.7%	2,273	1,979	92.9%	89.6%
South East Essex PCT	5P1	E16000103	0.5%	0.2%	1.0%	0.3%	77.4%	1.4%	66.9%	1.6%	13.8%	1.1%	14.4%	1.2%	8.3%	0.9%	17.7%	1.3%	3,496	3,355	95.4%	91.0%
South West Essex PCT	5PY	E16000131	0.8%	0.3%	0.9%	0.3%	76.8%	1.3%	65.5%	1.4%	13.2%	1.0%	13.9%	1.1%	9.3%	0.9%	19.6%	1.2%	4,335	4,153	91.0%	90.8%
Suffolk PCT	5PT	E16000127	0.5%	0.2%	1.1%	0.3%	78.1%	1.1%	67.8%	1.2%	13.1%	0.9%	14.2%	0.9%	8.3%	0.7%	16.8%	1.0%	5,956	5,511	96.9%	93.0%
West Essex PCT	5PV	E16000128	0.7%	0.3%	1.0%	0.4%	77.8%	1.5%	66.6%	1.8%	12.8%	1.2%	14.5%	1.3%	8.8%	1.0%	18.0%	1.5%	3,070	2,688	96.8%	94.9%
London SHA	Q36	E18000007	1.5%	0.1%	1.7%	0.1%	75.0%	0.3%	61.3%	0.4%	12.4%	0.2%	15.1%	0.3%	11.1%	0.2%	21.9%	0.3%	84,292	72,795	93.0%	92.2%
Barking & Dagenham PCT	5C2	E16000009	1.0%	0.4%	1.3%	0.5%	71.2%	1.6%	57.5%	2.1%	14.0%	1.2%	17.0%	1.6%	13.8%	1.2%	24.2%	1.8%	2,957	2,124	94.7%	90.0%
Barnet PCT	5A9	E16000006	1.2%	0.4%	1.8%	0.5%	77.2%	1.4%	64.7%	1.7%	12.1%	1.1%	14.0%	1.3%	9.5%	1.0%	19.5%	1.4%	3,251	2,908	85.1%	85.7%
Bexley Care Trust	TAK	E17000002	0.7%	0.3%	0.9%	0.4%	73.6%	1.7%	61.9%	1.9%	14.5%	1.3%	16.0%	1.4%	11.2%	1.2%	21.3%	1.6%	2,681	2,507	95.5%	90.0%
Brent Teaching PCT	5K5	E16000045	3.0%	0.6%	3.0%	0.6%	73.2%	1.5%	58.6%	1.8%	12.1%	1.1%	14.5%	1.3%	11.7%	1.1%	24.0%	1.6%	3,194	2,769	90.7%	90.4%
Bromley PCT	5A7	E16000004	0.8%	0.3%	0.8%	0.3%	78.5%	1.4%	68.4%	1.7%	12.9%	1.2%	14.5%	1.3%	7.8%	0.9%	16.4%	1.4%	3,156	2,836	93.9%	91.0%
Camden PCT	5K7	E16000047	0.9%	0.5%	1.5%	0.7%	75.4%	2.2%	62.2%	2.6%	12.6%	1.7%	13.8%	1.9%	11.1%	1.6%	22.5%	2.2%	1,466	1,327	96.6%	94.7%
City & Hackney Teaching PCT	5C3	E16000010	0.9%	0.4%	1.7%	0.6%	71.1%	1.8%	57.3%	2.2%	13.5%	1.3%	15.9%	1.6%	14.6%	1.4%	25.0%	1.9%	2,510	2,082	94.8%	92.2%
Croydon PCT	5K9	E16000049	1.1%	0.3%	1.4%	0.4%	75.9%	1.4%	60.4%	1.6%	12.4%	1.1%	14.9%	1.2%	10.6%	1.0%	23.3%	1.4%	3,741	3,445	92.7%	92.7%
Ealing PCT	5HX	E16000035	1.5%	0.4%	2.2%	0.5%	75.5%	1.4%	60.8%	1.7%	11.8%	1.0%	16.0%	1.3%	11.2%	1.0%	21.0%	1.4%	3,609	3,208	98.0%	97.1%
Enfield PCT	5C1	E16000008	1.0%	0.3%	1.3%	0.4%	70.6%	1.5%	57.1%	1.7%	13.8%	1.1%	16.4%	1.3%	14.6%	1.1%	25.2%	1.5%	3,712	3,285	89.1%	90.2%
Greenwich Teaching PCT	5A8	E16000005	1.0%	0.4%	1.4%	0.5%	71.7%	1.6%	57.4%	2.0%	14.9%	1.3%	16.3%	1.5%	12.4%	1.2%	24.9%	1.8%	2,959	2,263	95.1%	88.1%
Hammersmith & Fulham PCT	5H1	E16000030	1.5%	0.6%	1.0%	0.6%	74.4%	2.3%	60.1%	2.8%	12.7%	1.8%	15.2%	2.1%	11.4%	1.7%	23.7%	2.5%	2,322	1,159	98.0%	98.5%
Haringey Teaching PCT	5C9	E16000013	1.3%	0.4%	1.3%	0.5%	77.2%	1.7%	63.2%	2.0%	11.4%	1.3%	14.3%	1.5%	10.1%	1.2%	21.1%	1.7%	2,475	2,150	83.1%	81.2%
Harrow PCT	5K6	E16000046	5.1%	0.9%	4.0%	0.8%	79.9%	1.6%	64.0%	2.0%	8.1%	1.1%	14.5%	1.5%	6.9%	1.0%	17.6%	1.6%	2,322	2,184	89.1%	91.3%
Havering PCT	5A4	E16000002	0.7%	0.3%	1.1%	0.4%	75.0%	1.7%	63.7%	1.9%	13.5%	1.3%	16.0%	1.4%	10.8%	1.2%	19.3%	1.6%	2,459	2,476	94.1%	92.5%
Hillingdon PCT	5AT	E16000007	1.8%	0.4%	2.3%	0.5%	76.7%	1.4%	62.9%	1.8%	11.4%	1.1%	14.3%	1.3%	10.1%	1.0%	20.6%	1.5%	3,334	2,918	89.7%	93.6%
Hounslow PCT	5HY	E16000036	2.2%	0.5%	1.6%	0.5%	73.1%	1.6%	60.0%	2.0%	12.1%	1.2%	15.0%	1.5%	12.7%	1.2%	23.4%	1.7%	2,843	2,266	99.0%	99.0%
Islington PCT	5K8	E16000048	0.8%	0.4%	1.6%	0.6%	72.8%	2.2%	60.2%	2.4%	14.8%	1.7%	16.5%	1.8%	11.6%	1.6%	21.8%	2.0%	1,605	1,576	85.3%	87.8%
Kensington & Chelsea PCT	5LA	E16000056	0.5%	0.5%	1.2%	0.7%	77.2%	2.7%	63.2%	3.3%	14.2%	2.3%	14.5%	2.4%	8.1%	1.8%	21.1%	2.8%	918	840	94.8%	94.4%
Kingston PCT	5A5	E16000003	1.5%	0.6%	1.4%	0.6%	80.9%	1.9%	67.7%	2.4%	10.4%	1.5%	15.1%	1.9%	7.1%	1.2%	15.8%	1.9%	1,653	1,377	99.2%	98.3%
Lambeth PCT	5LD	E16000058	2.1%	0.5%	0.9%	0.4%	73.4%	1.6%	59.3%	2.0%	12.9%	1.2%	15.7%	1.5%	11.6%	1.2%	24.0%	1.7%	2,773	2,356	99.8%	100.0%
Lewisham PCT	5LF	E16000060	0.8%	0.3%	1.0%	0.4%	74.4%	1.5%	59.9%	1.9%	13.8%	1.2%	14.8%	1.4%	11.1%	1.1%	24.4%	1.7%	3,226	2,492	91.0%	91.6%
Newham PCT	5C5	E16000012	2.4%	0.5%	2.1%	0.5%	73.5%	1.3%	58.1%	1.6%	11.2%	0.9%	15.1%	1.2%	12.9%	1.0%	24.7%	1.4%	4,258	3,617	96.6%	95.5%
Redbridge PCT	5NA	E16000083	1.7%	0.4%	2.3%	0.5%	74.3%	1.4%	61.0%	1.7%	11.8%	1.1%	13.6%	1.2%	12.2%	1.1%	23.1%	1.5%	3,507	3,156	97.9%	97.6%
Richmond & Twickenham PCT	5M6	E16000067	0.5%	0.3%	1.0%	0.5%	82.0%	1.7%	74.4%	2.2%	11.2%	1.4%	13.9%	1.7%	6.4%	1.1%	10.7%	1.5%	1,952	1,528	91.3%	90.0%
Southwark PCT	5LE	E16000059	1.2%	0.4%	1.1%	0.4%	70.2%	1.8%	57.1%	2.0%	14.7%	1.4%	15.4%	1.5%	13.8%	1.3%	26.4%	1.8%	2,590	2,348	91.7%	91.0%
Sutton & Merton PCT	5M7	E16000068	1.0%	0.3%	1.6%	0.4%	79.3%	1.3%	64.1%	1.6%	11.4%	1.0%	15.6%	1.2%	8.3%	0.9%	18.7%	1.3%	3,696	3,322	87.9%	92.0%
Tower Hamlets PCT	5C4	E16000011	1.7%	0.5%	2.0%	0.6%	74.4%	1.6%	58.2%	2.0%	11.2%	1.2%	14.2%	1.4%	12.7%	1.2%	25.6%	1.7%	2,881	2,409	94.0%	90.0%
Waltham Forest PCT	5NC	E16000084	3.2%	0.6%	3.5%	0.7%	76.4%	1.5%	61.6%	1.9%	10.6%	1.1%	14.4%	1.4%	9.8%	1.0%	20.4%	1.6%	3,134	2,548	94.8%	92.0%
Wandsworth PCT	5LG	E16000061	1.1%	0.4%	2.0%	0.6%	76.0%	1.7%	61.8%	2.2%	13.1%	1.4%	15.3%	1.6%	9.8%	1.2%	20.9%	1.8%	2,319	1,910	93.1%	94.8%
Westminster PCT	5LC	E16000057	1.1%	0.5%	1.3%	0.6%	74.2%	2.2%	59.5%	2.6%	12.7%	1.7%	16.4%	2.0%	12.0%	1.6%	22.8%	2.2%	1,534	1,367	95.9%	94.9%

SHA/PCT Name	SHA/PCT Code	ONS Alpha numeric code	Underweight				Healthy weight				Overweight				Obese				Number of children measured		Participation rate	
			Reception		Year 6		Reception		Year 6		Reception		Year 6		Reception		Year 6					
			Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Prevalence	95% confidence interval ±	Reception	Year 6	Reception	Year 6
England	**ENG**		**1.0%**	**0.0%**	**1.3%**	**0.0%**	**76.4%**	**0.1%**	**65.3%**	**0.1%**	**13.2%**	**0.1%**	**14.4%**	**0.1%**	**9.4%**	**0.1%**	**19.0%**	**0.1%**	**541,255**	**495,353**	**93.4%**	**91.8%**
South East Coast SHA	**Q37**	**E18000008**	**0.7%**	**0.1%**	**1.1%**	**0.1%**	**78.1%**	**0.4%**	**68.1%**	**0.5%**	**13.0%**	**0.3%**	**14.0%**	**0.3%**	**8.2%**	**0.3%**	**16.7%**	**0.4%**	**42,806**	**39,382**	**92.1%**	**88.8%**
Brighton & Hove City PCT	5LQ	E16000063	0.5%	0.3%	0.8%	0.4%	78.1%	1.7%	70.3%	2.0%	13.2%	1.4%	13.7%	1.5%	8.2%	1.1%	15.2%	1.6%	2,403	1,942	92.7%	84.7%
East Sussex Downs & Weald PCT	5P7	E16000109	0.9%	0.3%	1.3%	0.4%	79.0%	1.5%	68.8%	1.7%	12.4%	1.2%	14.4%	1.3%	7.8%	1.0%	15.6%	1.3%	2,752	2,925	97.0%	89.5%
Eastern & Coastal Kent PCT	5QA	E16000132	0.6%	0.2%	1.0%	0.2%	77.3%	0.9%	65.4%	1.1%	13.2%	0.8%	15.2%	0.8%	8.9%	0.6%	18.5%	0.9%	7,567	7,265	95.2%	91.5%
Hastings & Rother PCT	5P8	E16000110	1.7%	0.6%	1.6%	0.6%	77.3%	2.1%	64.6%	2.3%	13.0%	1.7%	13.8%	1.7%	8.1%	1.4%	20.0%	1.9%	1,552	1,621	68.3%	67.4%
Medway PCT	5L3	E16000055	0.5%	0.3%	1.5%	0.5%	75.6%	1.6%	65.3%	1.8%	13.5%	1.2%	13.2%	1.3%	10.4%	1.1%	19.9%	1.5%	2,917	2,769	90.0%	91.7%
Surrey PCT	5P5	E16000107	0.7%	0.2%	1.2%	0.2%	80.4%	0.8%	72.1%	0.9%	11.9%	0.6%	13.0%	0.7%	7.0%	0.5%	13.7%	0.7%	10,547	9,068	89.7%	86.8%
West Kent PCT	5P9	E16000111	0.5%	0.2%	1.0%	0.2%	75.6%	1.0%	65.9%	1.1%	15.0%	0.8%	14.7%	0.8%	8.9%	0.6%	18.4%	0.9%	7,463	6,794	94.9%	95.1%
West Sussex PCT	5P6	E16000108	1.0%	0.2%	1.2%	0.3%	78.7%	0.9%	69.0%	1.1%	12.4%	0.7%	14.0%	0.8%	8.0%	0.6%	15.9%	0.9%	7,605	6,998	95.6%	89.7%
South Central SHA	**Q38**	**E18000009**	**1.0%**	**0.1%**	**1.2%**	**0.1%**	**78.5%**	**0.4%**	**68.3%**	**0.5%**	**12.3%**	**0.3%**	**14.0%**	**0.4%**	**8.1%**	**0.3%**	**16.5%**	**0.4%**	**40,830**	**37,331**	**89.4%**	**90.1%**
Berkshire East PCT	5QG	E16000137	1.6%	0.4%	1.8%	0.4%	80.0%	1.3%	65.7%	1.6%	9.9%	0.9%	15.4%	1.2%	8.4%	0.9%	17.1%	1.2%	3,930	3,499	85.4%	91.3%
Berkshire West PCT	5QF	E16000136	1.0%	0.3%	1.2%	0.3%	77.6%	1.2%	68.0%	1.4%	12.3%	1.0%	13.8%	1.0%	9.0%	0.8%	17.0%	1.1%	4,565	4,482	90.1%	92.8%
Buckinghamshire PCT	5QD	E16000134	0.7%	0.2%	1.5%	0.3%	79.5%	1.1%	69.3%	1.3%	11.8%	0.8%	13.9%	1.0%	8.0%	0.7%	15.4%	1.0%	5,542	5,030	94.1%	90.7%
Hampshire PCT	5QC	E16000133	1.0%	0.2%	1.0%	0.2%	79.9%	0.7%	69.6%	0.8%	12.0%	0.6%	13.8%	0.6%	7.1%	0.5%	15.6%	0.7%	12,066	11,847	84.9%	89.8%
Isle of Wight PCT	5QT	E16000147	0.7%	0.5%	1.8%	0.7%	76.2%	2.4%	66.3%	2.7%	12.9%	1.9%	14.7%	2.0%	10.2%	1.7%	17.3%	2.1%	1,208	1,200	92.5%	89.2%
Milton Keynes PCT	5CQ	E16000016	1.5%	0.4%	1.3%	0.5%	75.3%	1.6%	64.2%	2.0%	13.4%	1.2%	14.6%	1.5%	9.8%	1.1%	19.9%	1.6%	2,930	2,271	92.7%	81.5%
Oxford PCT	5QE	E16000135	0.6%	0.2%	1.1%	0.3%	79.2%	1.0%	70.1%	1.2%	12.8%	0.8%	13.9%	0.9%	7.4%	0.6%	14.9%	1.0%	6,341	5,240	93.0%	90.6%
Portsmouth City Teaching PCT	5FE	E16000027	1.0%	0.4%	0.8%	0.4%	74.6%	1.9%	64.8%	2.2%	14.7%	1.6%	15.4%	1.7%	9.6%	1.3%	19.0%	1.8%	1,948	1,794	92.5%	94.4%
Southampton City PCT	5L1	E16000054	1.1%	0.4%	0.9%	0.4%	75.2%	1.8%	67.5%	2.1%	14.2%	1.4%	12.0%	1.4%	9.6%	1.2%	19.6%	1.8%	2,300	1,968	91.1%	89.3%
South West SHA	**Q39**	**E18000010**	**0.5%**	**0.1%**	**1.0%**	**0.1%**	**76.4%**	**0.4%**	**68.2%**	**0.4%**	**14.3%**	**0.3%**	**14.2%**	**0.3%**	**8.8%**	**0.3%**	**16.6%**	**0.3%**	**48,264**	**45,068**	**90.9%**	**87.2%**
Bath & North East Somerset PCT	5FL	E16000028	0.4%	0.3%	1.3%	0.6%	75.5%	2.1%	68.1%	2.3%	15.7%	1.7%	13.7%	1.7%	8.4%	1.3%	16.9%	1.9%	1,684	1,560	98.8%	96.2%
Bournemouth & Poole PCT	5QN	E16000143	0.6%	0.3%	1.2%	0.4%	77.3%	1.6%	69.0%	1.8%	13.7%	1.3%	13.7%	1.4%	8.5%	1.0%	16.1%	1.4%	2,800	2,492	96.1%	92.8%
Bristol PCT	5QJ	E16000139	0.7%	0.3%	1.0%	0.3%	76.2%	1.3%	66.5%	1.6%	13.4%	1.1%	14.0%	1.2%	9.7%	0.9%	18.5%	1.3%	3,860	3,348	89.9%	90.8%
Cornwall & Isles Of Scilly PCT	5QP	E16000144	0.4%	0.2%	0.8%	0.3%	75.4%	1.3%	69.3%	1.6%	15.1%	1.1%	14.3%	1.2%	9.0%	0.9%	15.7%	1.2%	4,123	3,283	78.1%	60.2%
Devon PCT	5QQ	E16000145	0.5%	0.2%	0.9%	0.2%	76.0%	1.0%	68.9%	1.1%	14.7%	0.9%	14.1%	0.8%	8.8%	0.7%	16.1%	0.9%	6,585	6,491	91.7%	90.3%
Dorset PCT	5QM	E16000142	0.4%	0.2%	1.3%	0.4%	75.6%	1.4%	69.5%	1.5%	15.1%	1.2%	14.0%	1.1%	8.9%	0.9%	15.3%	1.2%	3,456	3,513	94.0%	88.9%
Gloucestershire PCT	5QH	E16000138	0.5%	0.2%	1.0%	0.3%	76.3%	1.1%	67.1%	1.2%	14.2%	1.0%	14.2%	0.9%	9.0%	0.7%	17.7%	1.0%	5,822	5,685	95.6%	93.7%
North Somerset PCT	5M8	E16000069	0.4%	0.3%	1.2%	0.5%	75.7%	1.9%	69.7%	2.1%	15.1%	1.6%	13.2%	1.5%	8.9%	1.3%	15.9%	1.7%	1,879	1,865	85.6%	88.1%
Plymouth Teaching PCT	5F1	E16000024	0.3%	0.2%	0.9%	0.4%	74.5%	1.7%	65.4%	2.0%	15.7%	1.4%	14.9%	1.5%	9.4%	1.1%	18.8%	1.6%	2,581	2,234	93.3%	90.6%
Somerset PCT	5QL	E16000141	0.3%	0.1%	1.0%	0.3%	76.3%	1.2%	68.5%	1.3%	14.8%	1.0%	14.0%	1.0%	8.6%	0.8%	16.5%	1.1%	4,883	4,599	91.0%	87.9%
South Gloucestershire PCT	5A3	E16000001	0.7%	0.3%	0.8%	0.3%	79.2%	1.5%	67.7%	1.8%	12.3%	1.2%	15.4%	1.4%	7.7%	1.0%	16.1%	1.4%	2,687	2,571	87.6%	87.0%
Swindon PCT	5K3	E16000044	0.8%	0.4%	1.1%	0.5%	76.4%	1.7%	67.7%	2.1%	14.2%	1.4%	13.9%	1.5%	8.6%	1.2%	17.3%	1.7%	2,271	1,965	91.6%	86.6%
Torbay Care Trust	TAL	E17000003	0.4%	0.4%	1.4%	0.7%	76.8%	2.6%	67.3%	2.8%	13.3%	2.1%	15.8%	2.2%	9.5%	1.8%	15.5%	2.2%	1,020	1,058	81.8%	81.8%
Wiltshire PCT	5QK	E16000140	0.5%	0.2%	0.8%	0.3%	78.2%	1.2%	68.7%	1.4%	13.3%	1.0%	14.1%	1.0%	8.0%	0.8%	16.4%	1.1%	4,613	4,404	95.0%	93.5%

Notes:

On 01/04/2010 Blackburn with Darwen PCT (5CC) was renamed to Blackburn with Darwen Teaching Care Trust Plus (TAP). West Hertfordshire PCT (5P4) and East and North Hertfordshire PCT (5P3) merged to become Hertfordshire PCT (5QV). As a result, there are now 151 PCTs post April 2010 compared with 152 pre April 2010. As a result of a statutory instrument which took effect on 15th April 2011, the designation of Solihull Care Trust (TAM) has been revoked and organisation is now known as Solihull PCT (5QW)

Source: The Health and Social Care Information Centre, Lifestyle Statistics / Department of Health Obesity Team NCMP Dataset
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Annex 2 - Data quality report

Table B shows a number of PCT data quality measures for the 2010/11 NCMP. As discussed at the beginning of Section 3, there have been considerable improvements in the overall participation rate since 2006/07.

Table B: PCT data quality report for NCMP 2010/11

Key:

	Green	Amber	Red
Measure 1 - Overall participation rate	≥90%	≥85% or <90%	<85%
Measure 2 - % of records with heights rounded to the nearest whole number	>5% and <25%	≥25% or ≤50%	<5% or >50%
Measure 3 - % of records with weights rounded to the nearest whole number	>5% and <25%	≥25% or ≤50%	<5% or >50%
Measure 4 - % of records with missing home postcodes	<25%	≥25% or ≤50%	>50%
Measure 5 - % of records with missing ethnicity codes	<25%	≥25% or ≤50%	>50%

	PCT name	Overall participation rate	Percentage of records with heights rounded to the nearest whole number	Percentage of records with weights rounded to the nearest whole number	Percentage of records with missing home postcodes	Percentage of records with missing ethnicity codes
England	National average	93%	19%	12%	0.3%	17%
5HG	Ashton, Leigh and Wigan PCT	91%	21%	11%	0.0%	100%
5C2	Barking and Dagenham PCT	93%	14%	10%	0.4%	1%
5A9	Barnet PCT	85%	21%	10%	0.7%	2%
5JE	Barnsley PCT	91%	15%	9%	0.0%	1%
5ET	Bassetlaw PCT	89%	14%	10%	0.0%	0%
5FL	Bath and North East Somerset PCT	98%	16%	11%	0.2%	16%
5P2	Bedfordshire PCT	95%	17%	9%	0.5%	2%
5QG	Berkshire East PCT	88%	15%	11%	0.1%	18%
5QF	Berkshire West PCT	91%	17%	10%	0.4%	51%
TAK	Bexley Care Trust	93%	15%	10%	0.2%	9%
5PG	Birmingham East and North PCT	91%	17%	10%	0.7%	24%
TAP	Blackburn with Darwen Teaching Care Trust Plus	97%	16%	9%	0.0%	14%
5HP	Blackpool PCT	95%	19%	9%	0.0%	2%
5HQ	Bolton PCT	95%	13%	9%	1.3%	0%
5QN	Bournemouth and Poole Teaching PCT	95%	19%	10%	0.0%	2%
5NY	Bradford and Airedale Teaching PCT	91%	22%	16%	0.1%	16%
5K5	Brent Teaching PCT	91%	21%	10%	0.1%	9%
5LQ	Brighton and Hove City PCT	89%	20%	7%	0.2%	9%
5QJ	Bristol PCT	90%	19%	10%	0.5%	21%
5A7	Bromley PCT	92%	15%	6%	0.0%	4%
5QD	Buckinghamshire PCT	92%	28%	12%	0.1%	7%
5JX	Bury PCT	99%	16%	18%	1.2%	2%
5J6	Calderdale PCT	96%	15%	13%	0.0%	7%
5PP	Cambridgeshire PCT	91%	13%	9%	0.0%	2%
5K7	Camden PCT	96%	23%	11%	0.1%	1%
5NP	Central and Eastern Cheshire PCT	95%	12%	11%	0.0%	43%
5NG	Central Lancashire PCT	93%	18%	10%	0.5%	52%
5C3	City and Hackney Teaching PCT	94%	21%	14%	0.4%	0%
5QP	Cornwall and Isles of Scilly PCT	69%	15%	13%	1.0%	4%
5ND	County Durham PCT	99%	14%	11%	0.7%	22%
5MD	Coventry Teaching PCT	97%	11%	10%	0.1%	4%
5K9	Croydon PCT	93%	14%	9%	0.0%	2%
5NE	Cumbria Teaching PCT	87%	18%	16%	1.1%	46%
5J9	Darlington PCT	98%	21%	10%	0.5%	1%
5N7	Derby City PCT	92%	17%	10%	0.8%	29%
5N6	Derbyshire County PCT	94%	15%	10%	0.0%	10%
5QQ	Devon PCT	91%	20%	11%	0.1%	12%
5N5	Doncaster PCT	94%	24%	10%	0.1%	1%
5QM	Dorset PCT	91%	17%	11%	0.0%	0%
5PE	Dudley PCT	99%	23%	11%	0.0%	0%
5HX	Ealing PCT	98%	22%	13%	0.1%	12%
5NH	East Lancashire Teaching PCT	97%	19%	11%	0.0%	4%
5NW	East Riding of Yorkshire PCT	97%	20%	9%	0.0%	7%
5P7	East Sussex Downs and Weald PCT	93%	18%	18%	0.0%	8%
5QA	Eastern and Coastal Kent PCT	93%	15%	11%	0.1%	2%
5C1	Enfield PCT	90%	28%	10%	0.6%	8%
5KF	Gateshead PCT	98%	13%	10%	1.4%	12%
5QH	Gloucestershire PCT	95%	23%	8%	0.3%	54%
5PR	Great Yarmouth and Waveney PCT	93%	9%	10%	0.1%	5%
5A8	Greenwich Teaching PCT	92%	12%	9%	0.0%	3%
5NM	Halton and St Helens PCT	90%	16%	10%	0.0%	42%
5H1	Hammersmith and Fulham PCT	98%	20%	22%	0.0%	17%
5QC	Hampshire PCT	87%	35%	32%	0.1%	64%
5C9	Haringey Teaching PCT	82%	18%	9%	0.7%	2%
5K6	Harrow PCT	90%	22%	10%	0.4%	8%
5D9	Hartlepool PCT	98%	22%	13%	0.0%	19%
5P8	Hastings and Rother PCT	68%	18%	31%	0.3%	11%
5A4	Havering PCT	93%	24%	10%	0.3%	2%
5MX	Heart of Birmingham Teaching PCT	95%	13%	9%	1.0%	1%
5CN	Herefordshire PCT	87%	15%	18%	0.1%	8%
5QV	Hertfordshire PCT	92%	30%	14%	0.0%	31%
5NQ	Heywood, Middleton and Rochdale PCT	97%	20%	12%	0.1%	15%
5AT	Hillingdon PCT	91%	18%	10%	0.3%	3%
5HY	Hounslow PCT	99%	21%	8%	0.6%	2%
5NX	Hull Teaching PCT	97%	20%	10%	0.0%	1%
5QT	Isle of Wight NHS PCT	91%	12%	9%	0.0%	5%
5K8	Islington PCT	87%	17%	11%	0.5%	4%
5LA	Kensington and Chelsea PCT	95%	15%	9%	0.2%	5%

	PCT name	Overall participation rate	Percentage of records with heights rounded to the nearest whole number	Percentage of records with weights rounded to the nearest whole number	Percentage of records with missing home postcodes	Percentage of records with missing ethnicity codes
England	National average	93%	19%	12%	0.3%	17%
5A5	Kingston PCT	99%	14%	9%	0.0%	0%
5N2	Kirklees PCT	95%	21%	11%	0.2%	1%
5J4	Knowsley PCT	97%	17%	9%	1.4%	100%
5LD	Lambeth PCT	100%	16%	10%	0.2%	9%
5N1	Leeds PCT	95%	18%	10%	0.1%	5%
5PC	Leicester City PCT	93%	16%	10%	0.0%	1%
5PA	Leicestershire County and Rutland PCT	93%	15%	12%	0.1%	3%
5LF	Lewisham PCT	91%	14%	10%	0.4%	3%
5N9	Lincolnshire Teaching PCT	93%	23%	16%	0.3%	33%
5NL	Liverpool PCT	94%	31%	84%	1.3%	3%
5GC	Luton PCT	99%	13%	8%	0.1%	17%
5NT	Manchester PCT	95%	22%	9%	1.3%	26%
5L3	Medway PCT	91%	15%	11%	0.0%	7%
5PX	Mid Essex PCT	93%	30%	37%	0.2%	16%
5KM	Middlesbrough PCT	97%	14%	10%	0.0%	1%
5CQ	Milton Keynes PCT	87%	15%	11%	0.0%	62%
5D7	Newcastle PCT	96%	18%	10%	0.0%	7%
5C5	Newham PCT	96%	20%	11%	0.0%	1%
5PQ	Norfolk PCT	89%	13%	10%	0.2%	48%
5PW	North East Essex PCT	95%	22%	19%	0.0%	45%
TAN	North East Lincolnshire Care Trust Plus	97%	15%	8%	0.1%	21%
5NF	North Lancashire Teaching PCT	88%	14%	11%	0.0%	9%
5EF	North Lincolnshire PCT	92%	41%	15%	0.2%	20%
5M8	North Somerset PCT	87%	14%	9%	0.1%	0%
5PH	North Staffordshire PCT	95%	23%	14%	0.0%	16%
5D8	North Tyneside PCT	97%	17%	17%	0.0%	0%
5NV	North Yorkshire and York PCT	93%	24%	9%	0.0%	7%
5PD	Northamptonshire Teaching PCT	95%	31%	9%	0.1%	48%
TAC	Northumberland Care Trust	95%	15%	9%	0.4%	0%
5EM	Nottingham City PCT	91%	20%	9%	0.0%	8%
5N8	Nottinghamshire County Teaching PCT	88%	29%	11%	0.1%	1%
5J5	Oldham PCT	92%	21%	10%	0.0%	48%
5QE	Oxfordshire PCT	92%	11%	10%	0.1%	2%
5PN	Peterborough PCT	91%	21%	9%	0.1%	37%
5F1	Plymouth Teaching PCT	92%	13%	10%	0.4%	10%
5FE	Portsmouth City Teaching PCT	93%	21%	10%	0.0%	53%
5NA	Redbridge PCT	98%	16%	7%	0.6%	1%
5QR	Redcar and Cleveland PCT	95%	14%	10%	0.0%	2%
5M6	Richmond and Twickenham PCT	91%	17%	10%	3.2%	3%
5H8	Rotherham PCT	98%	17%	10%	0.1%	1%
5F5	Salford PCT	95%	19%	11%	0.0%	3%
5PF	Sandwell PCT	98%	56%	52%	0.5%	1%
5NJ	Sefton PCT	96%	18%	11%	0.1%	90%
5N4	Sheffield PCT	96%	12%	6%	0.1%	1%
5M2	Shropshire County PCT	87%	19%	6%	0.2%	19%
5QW	Solihull PCT	92%	15%	11%	0.2%	100%
5QL	Somerset PCT	89%	22%	10%	0.2%	22%
5M1	South Birmingham PCT	97%	18%	10%	0.9%	2%
5P1	South East Essex PCT	93%	7%	6%	0.4%	8%
5A3	South Gloucestershire PCT	87%	12%	8%	0.2%	6%
5PK	South Staffordshire PCT	89%	20%	11%	0.4%	1%
5KG	South Tyneside PCT	98%	14%	10%	1.9%	39%
5PY	South West Essex PCT	91%	14%	10%	0.5%	38%
5L1	Southampton City PCT	90%	19%	13%	0.0%	26%
5LE	Southwark PCT	91%	26%	10%	1.1%	10%
5F7	Stockport PCT	92%	16%	20%	0.8%	21%
5E1	Stockton-On-Tees Teaching PCT	99%	20%	11%	0.0%	0%
5PJ	Stoke on Trent PCT	100%	20%	8%	0.1%	16%
5PT	Suffolk PCT	95%	14%	8%	0.0%	6%
5KL	Sunderland Teaching PCT	97%	18%	10%	0.6%	20%
5P5	Surrey PCT	88%	19%	10%	0.6%	8%
5M7	Sutton and Merton PCT	90%	14%	7%	0.0%	7%
5K3	Swindon PCT	89%	17%	9%	0.2%	13%
5LH	Tameside and Glossop PCT	96%	16%	10%	0.1%	61%
5MK	Telford and Wrekin PCT	84%	9%	6%	0.1%	20%
TAL	Torbay Care Trust	82%	18%	12%	0.9%	1%
5C4	Tower Hamlets PCT	92%	17%	11%	0.8%	8%
5NR	Trafford PCT	95%	21%	13%	0.0%	7%
5N3	Wakefield District PCT	91%	18%	10%	0.2%	6%
5M3	Walsall Teaching PCT	98%	10%	10%	0.0%	1%
5NC	Waltham Forest PCT	94%	25%	7%	0.2%	2%
5LG	Wandsworth PCT	94%	20%	8%	0.3%	2%
5J2	Warrington PCT	94%	14%	15%	0.1%	13%
5PM	Warwickshire PCT	96%	12%	10%	0.8%	1%
5PV	West Essex PCT	96%	17%	12%	0.9%	5%
5P9	West Kent PCT	95%	14%	12%	0.0%	15%
5P6	West Sussex PCT	93%	14%	12%	0.1%	100%
5NN	Western Cheshire PCT	97%	17%	10%	0.0%	5%
5LC	Westminster PCT	95%	15%	9%	0.0%	2%
5QK	Wiltshire PCT	94%	16%	11%	0.0%	5%
5NK	Wirral PCT	97%	14%	10%	1.4%	1%
5MV	Wolverhampton City PCT	96%	18%	11%	0.2%	6%
5PL	Worcestershire PCT	91%	16%	9%	0.0%	25%

The main data quality indicator is measure 1, the overall participation rate (the percentage of eligible Reception and Year 6 children for which valid measurements were received).

Four other data quality measures are also presented:

- Measures 2 and 3: percentage of records with rounded heights / weights. Heights and weights in the NCMP should be rounded to 1 decimal place, and so it would be expected that approximately 10% of measurements would be rounded to the nearest whole number. Percentages that are considerably different to this may have been inappropriately rounded. Analysis by the National Obesity Observatory has shown that systematic rounding to the

nearest whole number can have a small overall biasing effect on height and weight measurements.

- Measures 4 and 5: percentages of records with complete home postcodes and ethnicity codes. The 2007/08 NCMP was the first year for which collection of these data fields was mandatory.

Annex 3 – Confidence intervals and significance testing

A confidence interval gives an indication of the likely error around an estimate that has been calculated from measurements based on a sample of the population. It indicates the range within which the true value for the population as a whole can be expected to lie, taking natural random variation into account.

Throughout this report, 95% confidence intervals are used. These are known as such because if it were possible to repeat the same programme under the same conditions a number of times, we would expect 95% of the confidence intervals calculated in this way to contain the true population value for that estimate.

Larger sample sizes lead to narrower confidence intervals, since there is less natural random variation in the results when more individuals are measured. The NCMP has relatively narrow confidence limits because of the large size of the sample.

There is an adjustment known as the 'Finite Population Correction' (FPC) which can be applied to confidence intervals when the survey size exceeds 5% of the population. This ensures that the greater the proportion of the population sampled, the smaller the confidence intervals around the estimates produced. If the survey covers 100% of the population, the confidence interval is reduced to zero by the FPC.

The NCMP samples a very large proportion of the child populations in Reception and Year 6. Nevertheless, the FPC is not applied to the confidence intervals presented. This is because, in practice, the NCMP results are used much more broadly than simply to draw conclusions of the form 'x% of children of Reception age measured for the NCMP were obese'. The statistics are assumed to apply to the current population of children in Reception/Year 6 and are used to make comparisons between NCMP results across different years and to make comparisons between different sub-populations (e.g. geographical areas). As a result, the confidence intervals are not adjusted by the FPC so that they are not reduced on the basis of coverage.

This approach is consistent with that used throughout the public health community. For example, census, mortality and hospital admission data represent a 100% sample, yet the associated confidence intervals are routinely calculated without the FPC adjustment.

Please also note that raw confidence limits do not reflect error due to issues such as data quality and low response rates and, therefore, may give a misleading impression of the degree of precision.

The significance of the difference between two rates or proportions has been carried out throughout this report using the approach outlined below where appropriate. This is an improvement on the statistical significance testing methodology carried out in NCMP reports prior to 2009/10 and makes this analysis consistent with that used and

advised by the Association of Public Health Observatories (APHO) and the National Obesity Observatory ( ).

- Calculate 95% confidence intervals using the method described by Wilson[26] and Newcombe[27]

- Calculated the estimated proportions of children with and without the feature of interest (e.g. percentage of obese Reception year children):

    observed number of obese Reception year children in each area =r

    sample size = n

    proportion with feature of interest = p = r/n

    proportion without feature of interest = q = (1 – p)

- Calculate three values (A, B and C) as follows:

$$\mathbf{A = 2r + z^2}; \quad \boldsymbol{B = z\sqrt{z^2 + 4rq}} \; ; \quad \text{and} \quad \mathbf{C = 2(n+z^2)}$$

    where z is the appropriate value, $z_{1-\alpha/2}$, from the standard Normal distribution.

- Then the confidence interval for the population proportion is given by

    (A-B)/C   to   (A+B)/C

This method is superior to other approaches because it can be used for any data. When there are no observed events, then r and hence p are both zero, and the recommended confidence interval simplifies to 0 to $z^2/(n+z^2)$. When r = n so that p = 1, the interval becomes $n/(n+z^2)$ to 1.

In order to test for statistical significance, the use of the approach outlined by Altman et al. in Statistics with Confidence (edition 2)[28] should then be followed

- Calculate the absolute difference between the two proportions, $\hat{D} = \hat{p}_2 - \hat{p}_1$

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[26] Wilson EB (1927) Probable inference, the law of succession, and statistical inference. J Am Stat Assoc; **22**:209-212

[27] Newcombe RG (1998) Two-sided confidence intervals for the single proportion: comparison of seven methods. Stat Med; **17**:857-72

[28] Altman DG, Machin D, Bryant TN and Gardner MJ (2000) Statistics with Confidence, 2nd edn. London; BMJ books; 49

Then calculate the confidence limits around $\hat{D}$ as:

$$\hat{D} - \sqrt{(\hat{p}_2 - l_2)^2 + (u_1 - \hat{p}_1)^2} \quad \text{to} \quad \hat{D} + \sqrt{(\hat{p}_1 - l_1)^2 + (u_2 - \hat{p}_2)^2}$$

where $\hat{p}_i$ is the estimated prevalence for year i, and l_i and u_i are the lower and upper confidence intervals for $\hat{p}_i$ respectively.

- A significance difference exists between proportions $\hat{p}_1$ and $\hat{p}_2$ if and only if zero in not included in the range covered by the confidence limits around the difference $\hat{D}$.

This improved methodology has not been applied to previous years. However, users would be able to do so using the methodology above.

Annex 4 – Calculation of prevalence

Prevalence = number of overweight or obese ÷ number of valid records uploaded

The data collection tool calculates the number of overweight/obese children using the following steps for each record:

1. calculate the BMI: $BMI = \dfrac{10,000}{h^2(cm^2)} \times w(kg)$

2. calculate the BMI z-score:
    a. look up child age (rounded to the nearest whole month) and sex on the UK90 BMI centiles classification;

    b. retrieve the corresponding L, M, and S values for use in the following formula (where y is the BMI score):

    $$z = \dfrac{\left(\dfrac{y}{M}\right)^L - 1}{LS}$$

3. calculate the BMI p-score by converting the above z-score using the standardised normal distribution

4. children with a BMI p-score of <=0.02 are flagged as 'underweight', those with a p-score >0.02 and <0.85 are flagged as 'healthy', those with a p-score >=0.85 and <0.95 are flagged as 'overweight' and those with a p-score >=0.95 are flagged as 'obese'.

Prevalence rates are then calculated by dividing the numbers of children flagged by the number of eligible records uploaded for each school year.

Annex 5 – Calculation of participation rates

Calculating participation rates:

The participation rate is the proportion of eligible children who were measured by the PCT. The participation rate is calculated by dividing **the number of pupils for whom valid measurements were recorded** by **the number of pupils who were eligible for measurement**.

From 2007/08 PCTs were given access to a secure NCMP website where they were able to view, following their data upload, their participation rate and the basis upon which it had been calculated. PCTs were able to review their data, make corrections, and re-upload data to the NCMP database, as many times as necessary.

The **number of pupils measured** is the total number of records uploaded by a PCT to the NCMP database *excluding:*

    i.   Invalid records (further information on the validation process can be found in Annex 7);

    ii. Records from independent and special schools.

Note: after a PCT had uploaded data they were provided with information on the secure NCMP website detailing the records that would be removed due to being invalid. PCTs were given the opportunity to correct these records and thereby increase their participation rate.

The **number of pupils eligible for measurement** for each school year is the number of pupils in state-maintained schools, with primary school aged children, excluding pupils with special educational needs:

i. Estimates of the total number of pupils that were eligible for measurement, based on DfE data, were initially supplied to PCTs. PCTs were then able to update these figures if they deemed them inaccurate.
ii. These 'eligible' figures were automatically validated, on upload, through comparison to other PCT supplied data: (i) the school-level headcounts and (ii) the number of pupils with special educational needs.
iii. Based on this comparison, the PCT supplied 'eligible' figure was either accepted or rejected by the database[29].
iv. PCTs had the opportunity to review and correct their data, if necessary.

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[29] The report compared **(A)** to **(B) – (C)** for each year, where:

(A) is the number of eligible pupils
(B) is the state-maintained schools headcount sum
(C) is the number of pupils with special educational needs
Since the number of eligible pupils should be the number of pupils in state-maintained schools, excluding pupils with special educational needs, it would be expected that
(A) = (B) – (C).

The database carried out the following calculation:

- Where **(A)/ ((B) – (C))** is in the range 0.95 to 1.05, **(A)** was **accepted**.
- Where **(A)/ ((B) – (C))** is outside the range 0.95 to 1.05, **(A)** was **rejected** and **(B) – (C)** was used instead.

Annex 6 - Effect of participation rate on prevalence

Although there have been year-on-year increases in the participation rates for the NCMP since 2006/07 in each age group, the dataset used to estimate prevalence is nevertheless based on a sample. The prevalence rates for the sample are assumed to apply to the entire population.

To avoid biased results, a sample must be representative of the entire population from which it was drawn. In the case of the NCMP this means that every child must have an equal chance of being included in the dataset.

If the children who do not get included in the dataset share certain characteristics, such as being more likely to be overweight, then the sample would be biased. Such selective non-participation of overweight or obese children could potentially bias the results.

We do not have a good measure of the degree of selective opt out, but participation may provide a reasonable proxy of this factor. The higher the participation rate, the less chance there is for selective opt out, though this measure is far from perfect.

As in previous years, the strength of the relationship between participation rate and obesity prevalence has been assessed for 2010/11. The strength of the linear relationship between the two variables was calculated using a numerical measure known as the product moment correlation coefficient (r). This measures how close to a straight line the points lie on a graph. If the points lie exactly on a straight line with a positive gradient, r would equal 1. If the points lie exactly on a straight line with negative gradient, r would equal -1. A value of r = 0 indicates that the variables are not correlated.

The value of r was calculated to be 0.24 for Reception year and 0.36 for Year 6. The critical value of r above which the association can be determined to be significant under a one tail test (a test to determine whether obese children are more likely to opt out is one tail as bias is thought to be in a particular direction) is 0.134. Thus, the association between participation rate and obesity prevalence was significant for both age groups.

In order to ascertain the necessity of introducing an adjustment to the obesity prevalence estimates, or the confidence intervals associated with them, both the strength of the association between participation and obesity and the impact of differential opt out must be examined. The

overall participation rate was high (93.4% for Reception year and 91.8% for Year 6) and the standard deviation in these rates were low (4.2% for Reception year and 4.7% for Year 6), which raises the possibility that differential opt-out among obese children had a much smaller effect than in previous years when participation rates were lower, in spite of the significant association.

An estimate of the overall impact on the prevalence figures was carried out using the same method as previous years with a refinement[30]. NCMP data relating to both 2010/11 and 2009/10 was used to examine how the change in participation rate affected the change in the obesity prevalence.

The value of r showing the strength of the relationship between change in participation rate and change in obesity was found to be 0.147 for Reception year and 0.176 for Year 6, indicating the association was significant for Year 6 only. The formula for the line of best fit for Year 6 ($y = 0.002232 + 0.03816x$) shows that a 1 percentage point increase in Year 6 participation rate between 2009/10 and 2010/11 will, on average, lead to an increase in the Year 6 obesity prevalence estimate of approximately 0.038 percentage points. Around this estimate, there is a confidence interval of +/- 0.034 percentage points.

Given that the Year 6 participation rate was 91.8% in 2010/11, it is likely that the true obesity prevalence in this year was underestimated by (100-91.8)*0.038 = 0.31 percentage points +/- 0.17 percentage points.

There may be other confounding factors which have a greater impact on the prevalence figures, and these are not investigated in this report.

In conclusion, although participation rate is shown to have a slight but significant positive association with the estimated prevalence of obese children in both Reception year and Year 6 in the 2010/11 NCMP data, the impact of differential opt-out among obese children was much smaller than in previous years and considered negligible, requiring no adjustment to either prevalence estimates or the associated 95% confidence intervals.

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[30] This method was refined slightly; participation rates in both 2009/10 and 2010/11 were recalculated before the linear regression was performed, so that rates related to the participation amongst just those schools that took part in the NCMP in each respective year. This was in order to isolate the effect of differential opt-out among obese children in just those schools that took part.

Annex 7 – Data cleaning

The data that PCTs uploaded to the NCMP database underwent a series of data quality checks before being included in the national dataset. A guidance document was introduced for the 2008/09 NCMP collection and was provided to PCTs. This document gives full details of the data quality checks that the NCMP 2010/11 data underwent. It is available on the following link: www.ic.nhs.uk/ncmp/validation

Annex 8 – United Kingdom Statistics Authority Assessment of the National Child Measurement Programme: England

During 2009, the *National Child Measurement Programme: England* report published by the NHS Information Centre underwent assessment by the United Kingdom Statistics Authority. Following assessment, the publication was awarded National Statistics status (see below):

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

• meet identified user needs;

• are well explained and readily accessible;

• are produced according to sound methods; and

• are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

A copy of the full UKSA assessment report is available on the following link:

www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-18---national-child-measurement-programme.pdf