

## National Child Measurement Programme (NCMP) 2007/08: Results for the 2007/08 data collection in Yorkshire and the Humber

### NCMP 2007/08

#### Background

Since 2004/05 PCTs have been tasked with collecting data on the height and weight of all children in reception and Year 6 classes of Local Education Authority (LEA) maintained schools on an annual basis (DH & DCSF 2007). The National Child Measurement Programme (NCMP) is a Department of Health led initiative to support tackling the national public service agreement (PSA) target to reverse the rising tide of obesity and overweight in the population, by ensuring that all individuals are able to maintain a healthy weight. The government's initial focus is on children and by 2020 they aim to have reduced the proportion of overweight and obese children to 2000 levels. The national target is being tackled locally through the setting of targets in the PCT Vital Signs (DH 2007). This is monitored using data from the NCMP. This briefing sets out the key findings in Yorkshire and the Humber from the 2007/08 NCMP dataset and highlights changes from 2006/07.

#### Headline Results for 2007/08

In Yorkshire and the Humber valid height and weight measurements were collected for 91% of reception children and 89% of Year 6 children. This is an increase from 88% and 82% respectively in 2006/07. At PCT level, this varied between 76% and 98% for reception and between 78% and 99% for Year 6.

Of all reception children measured, 13.0% were at risk of being overweight and a further 9.8% were at risk of being obese. This is not significantly different from all children of this age across England. Prevalence rates were higher in year 6 children compared to reception with 14.2% at risk of being overweight and a further 18.9% at risk of being obese. Year 6 children in Yorkshire and the Humber have a statistically significantly

#### Key Messages

- Valid height and weight measurements were collected for 91% of children in Reception and 89% of Year 6 children across Yorkshire and the Humber.
- In Yorkshire and the Humber 13.0% of children in Reception were at risk of being overweight and 9.8% were at risk of being obese.
- Of the children in Year 6, 14.2% were at risk of being overweight and 18.9% were at risk of being obese in Yorkshire and the Humber.
- Between 2006/07 and 2007/08 the proportion of children in Reception in Yorkshire and the Humber who were at risk of being overweight or obese stayed the same. For Year 6 children the proportion at risk of being overweight has remained similar but the proportion at risk of obesity has increased slightly.

greater chance of being at risk of obesity than across all of England. In Yorkshire and the

#### Definitions

##### At risk of being obese

Children with a Body Mass Index that is above the 95<sup>th</sup> percentile for their age and sex based on the UK 1990 growth reference curve (Cole 1995) are classified as 'at risk of being obese' in the NCMP.

##### At risk of being overweight

Children with a Body Mass Index that is above the 85<sup>th</sup> percentile but lower than the 95<sup>th</sup> percentile for their age and sex based on the UK 1990 growth reference curve (Cole 1995) are classified as 'at risk of being overweight' in the NCMP.

Humber 18.9% of Year 6 children are at risk of obesity compared to 18.3% for the whole of England.

Figures 1 and 2 compare the prevalence of being at risk of overweight and obesity in Yorkshire and the Humber to other regions in England. At present there is not a statistically significant difference in the proportion of children in these age groups that are at risk of overweight and obesity in Yorkshire and the Humber compared to England.

Figure 1

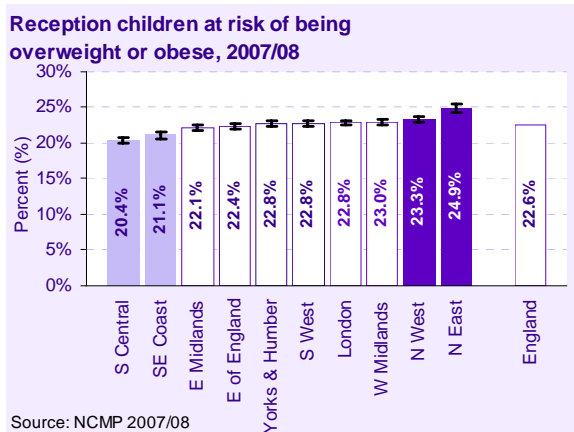
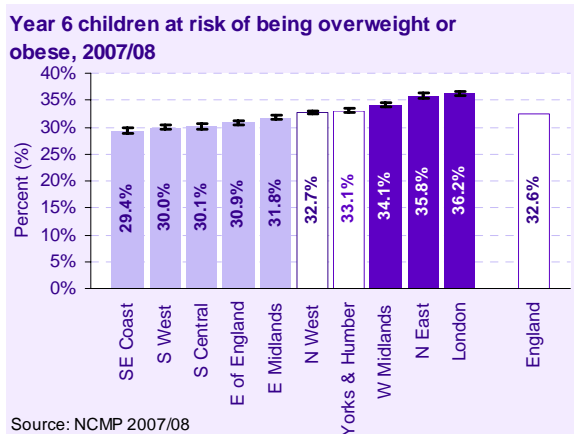


Figure 2



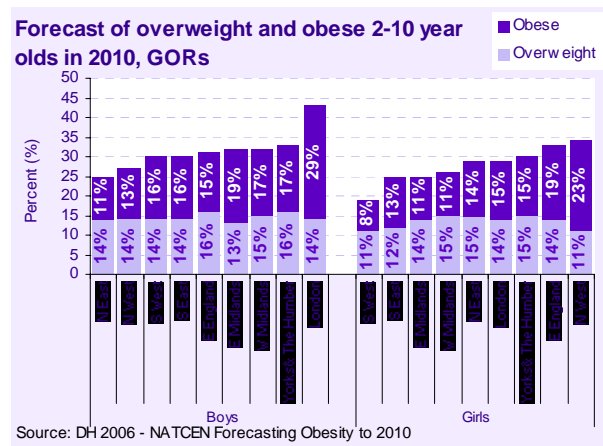
Between 2006/07 and 2007/08 the proportion of children in Reception in Yorkshire and the Humber who were at risk of being overweight or obese stayed the same. For Year 6 children the proportion at risk of being overweight has remained similar but the proportion at risk of obesity has increased slightly. In 2007/08, 22.8% of Reception children were at risk of overweight or obesity compared with 22.6% in 2006/07. The figures for Year 6 children rose from 31.3% in 2006/07 to 33.1% in 2007/08.

## Forecasts of overweight and obesity

Based on data from the Health Survey for England it is estimated that the prevalence of overweight and obesity among children aged 2 to 10 years old will increase at a faster rate in Yorkshire and the Humber compared to England as a whole. As a result it is predicted that the region will have the second highest prevalence among boys and the third highest amongst girls by 2010 (Figure 3 based on DH & NatCen (2006)).

These factors mean that the region faces considerable challenges if it is to meet the national targets on child obesity.

Figure 3



## Changes in the distribution of Body Mass Index

When considering the issue of obesity it is useful to consider the distribution of the BMIs of the whole group of children measured. This will identify whether there has simply been an increase in the number of children at risk of overweight and obesity or whether there is also a larger proportion of children at the top end of the healthy weight category.

When the distribution of the BMI values for children in Reception reported in the 2007/08 NCMP are compared to the UK 1990 Growth Reference Curve, it can be seen that the curve has moved to the right and the peak of the chart is higher than the UK 1990 Reference Curve (Figure 4). This indicates that the mode (most common) BMI has increased and that the spread of children across the BMI range has narrowed. A different pattern is seen in children in Year 6 (Figure 5). The 2007/08 measurements are spread over a wider range of values and there are more children whose BMI is greater than the UK 1990 Reference Curve mode than there are with a BMI lower than the median.<sup>1</sup> This represents a shift towards higher BMIs among this group of children.

Figure 4

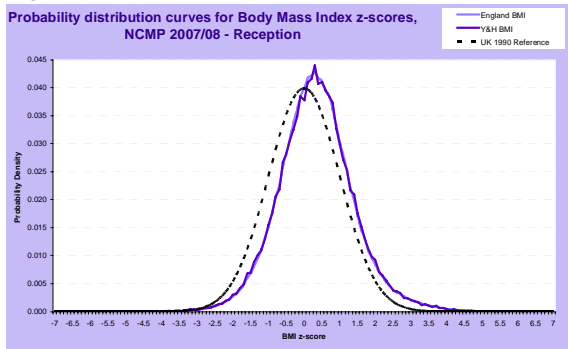
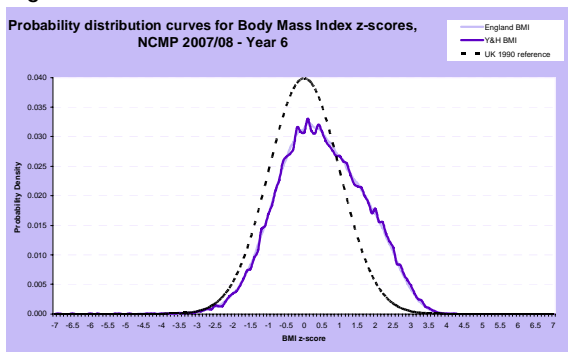


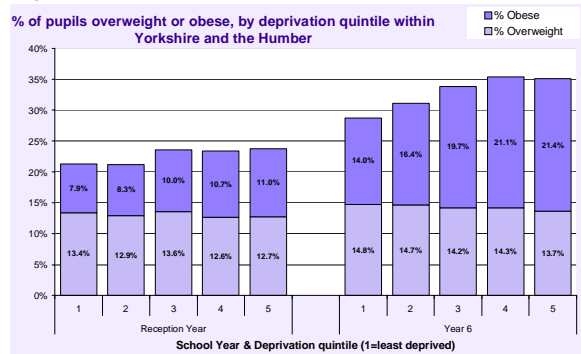
Figure 5



### Deprivation analysis

The 2007/08 NCMP dataset included the Lower Super Output Area (LSOA) of the child's home address. This enables comparisons of obesity levels by deprivation. Across Yorkshire and the Humber the proportion of children in Reception and Year 6 who are at risk of being overweight is similar across each of the quintiles of deprivation based on the Indices of Deprivation 2007. However, children living in the most deprived areas are more likely to be at risk of obesity than those residing in the less deprived neighbourhoods in the region. This pattern is apparent among children in Reception but there is a greater contrast among children in Year 6 (Figure 6). A child in Year 6 living in an area in the most deprived quintile is over 50% more likely to be at risk of obesity than a child of the same age living in an area in the least deprived quintile.

Figure 6



## PCT level results

### Headline results

Tables 1-4 show the overall prevalence rates for children at risk of being overweight or obese for PCTs within Yorkshire and the Humber, highlighting where the rates were significantly different compared to the national average using the same definitions as those used in the national NCMP report produced by The Information Centre for Health and Social Care (Information Centre, 2008).

#### Key to tables

	Significantly lower than England average
	No significant difference to England average
	Significantly higher than England average

Table 1

Reception children at risk of being overweight

PCT	Overweight	Children measured	Prevalence
Calderdale	234	2,203	10.6%
Leeds	803	7,201	11.2%
Sheffield	574	4,809	11.9%
Bradford & Airedale	735	6,011	12.2%
Kirklees	591	4,734	12.5%
Barnsley	267	2,126	12.6%
Doncaster	393	2,979	13.2%
Rotherham	348	2,627	13.2%
North Lincolnshire	221	1,574	14.0%
North East Lincolnshire	241	1,686	14.3%
East Riding of Yorkshire	352	2,406	14.6%
Hull	338	2,303	14.7%
Wakefield District	445	2,988	14.9%
North Yorkshire & York	1,020	6,802	15.0%
Yorkshire & Humber	6,562	50,449	13.0%
England	62,000	478,381	13.0%

Table 2

### Reception children at risk of being obese

PCT	Obese	Children measured	Prevalence
Calderdale	155	2,203	7.0%
Sheffield	390	4,809	8.1%
Leeds	602	7,201	8.4%
North Yorkshire & York	642	6,802	9.4%
Kirklees	458	4,734	9.7%
East Riding of Yorkshire	239	2,406	9.9%
North Lincolnshire	161	1,574	10.2%
Barnsley	222	2,126	10.4%
Wakefield District	314	2,988	10.5%
Bradford & Airedale	635	6,011	10.6%
North East Lincolnshire	190	1,686	11.3%
Doncaster	346	2,979	11.6%
Hull	271	2,303	11.8%
Rotherham	316	2,627	12.0%
Yorkshire & Humber	4,941	50,449	9.8%
England	46,092	478,381	9.6%

**Table 3**  
Year 6 children at risk of being overweight

PCT	Overweight	Children measured	Prevalence
Sheffield	667	5,045	13.2%
North Lincolnshire	208	1,552	13.4%
Barnsley	347	2,555	13.6%
Calderdale	317	2,296	13.8%
Bradford & Airdale	768	5,561	13.8%
Leeds	1,014	7,330	13.8%
East Riding of Yorkshire	450	3,230	13.9%
Kirklees	664	4,638	14.3%
North East Lincolnshire	269	1,861	14.5%
North Yorkshire & York	1,019	7,043	14.9%
Wakefield District	484	3,247	15.1%
Doncaster	496	3,291	15.4%
Hull	372	2,421	15.4%
Rotherham	452	2,797	16.2%
Yorkshire & Humber	7,527	52,867	14.2%
England	70,839	496,297	14.3%



**Table 4**  
Year 6 children at risk of being obese

PCT	Obese	Children measured	Prevalence
North Yorkshire & York	1,095	7,043	15.5%
Calderdale	362	2,296	15.8%
Sheffield	878	5,045	17.4%
East Riding of Yorkshire	570	3,230	17.6%
North Lincolnshire	292	1,552	18.8%
Kirklees	878	4,638	18.9%
Doncaster	630	3,291	19.1%
Leeds	1,418	7,330	19.3%
North East Lincolnshire	364	1,861	19.6%
Wakefield District	664	3,247	20.4%
Rotherham	583	2,797	20.8%
Bradford & Airedale	1,162	5,561	20.9%
Barnsley	544	2,555	21.3%
Hull	539	2,421	22.3%
Yorkshire & Humber	9,979	52,867	18.9%
England	90,917	496,297	18.3%

Only a few PCTs showed statistically significant changes in the proportion of children who were at risk of being overweight or obese between 2006/07 and 2007/08 (Table 5). The overall trend is of increasing prevalence of overweight and obesity among children in Year 6 in Yorkshire and the Humber. There are no consistent trends in the proportion of Reception children that are at risk of being overweight or obese. This mirrors the national trend among Year 6 children but of a greater magnitude.

**Table 5**  
Change in prevalence from 2006/07 to 2007/08

	Reception		Year 6	
	Overweight	Obese	Overweight	Obese
Barnsley	0.1%	1.0%	-1.6%	1.4%
Bradford & Airedale	-0.4%	-0.1%	0.2%	1.4%
Calderdale	-0.4%	-0.7%	-0.1%	1.8%
Doncaster	0.5%	2.8%	0.9%	1.1%
East Riding of Yorkshire	1.4%	0.7%	0.0%	2.1%
Hull	-0.3%	-0.1%	0.6%	2.6%
Kirklees	-0.5%	0.1%	-0.2%	2.2%
Leeds	-0.6%	-0.8%	-0.6%	1.6%
North East Lincolnshire	-2.6%	1.3%	-0.1%	3.1%
North Lincolnshire	2.9%	-0.8%	-1.4%	2.1%
North Yorkshire & York	0.4%	0.3%	0.2%	-0.2%
Rotherham	-0.3%	1.7%	1.1%	2.4%
Sheffield	2.2%	1.2%	0.7%	2.6%
Wakefield District	-1.8%	-5.5%	1.2%	2.5%
Yorkshire & Humber GOR	0.1%	0.1%	0.1%	1.7%
England	-0.1%	-0.2%	0.1%	0.8%

Key  
 Statistically significant increase  
 Statistically significant decrease

### Alternative definitions of underweight, overweight and obese in children

The NCMP used cut-off points of the 85<sup>th</sup> and 95<sup>th</sup> percentiles from the UK1990 growth reference curve (Cole, 1995) for overweight and obese respectively. Traditionally in the UK, the 91<sup>st</sup> and 98<sup>th</sup> percentiles are used in a clinical setting to define individuals as overweight and obese respectively, although a number of other measures and indicators are usually taken into account before a clinical diagnosis is made. Tables 6-7 show prevalence of overweight or obesity using these cut-off points.

Figures 7-8 below show prevalence of underweight children and identifies that Yorkshire and the Humber has a similar proportion of children at risk of being underweight as across the whole of England.

Table 6

Children's BMI classification - year 6		Total children measured in reception	Underweight		Healthy Weight		Overweight		Obese	
PCT Code	PCT		<2nd	2nd-5th	6th-85th	86th-97th	98th	99th	100th	
SEF	North Lincolnshire	1574	2.0%	2.4%	71.3%	8.1%	6.0%	4.5%	5.7%	
SH8	Rotherham	2627	1.1%	1.9%	71.7%	7.6%	5.7%	5.1%	6.9%	
SJ6	Calderdale	2203	1.9%	2.7%	77.8%	6.3%	4.4%	2.7%	4.4%	
SJE	Barnsley	2126	0.9%	1.0%	75.1%	6.8%	5.7%	5.0%	5.5%	
SN1	Leeds	7201	1.9%	2.3%	76.3%	6.4%	4.7%	3.7%	4.6%	
SN2	Kirklees	4734	1.7%	1.5%	74.6%	7.2%	5.3%	4.2%	5.4%	
SN3	Wakefield District	2988	0.5%	0.9%	73.2%	8.5%	6.4%	4.7%	5.9%	
SN4	Sheffield	4809	1.6%	1.9%	76.3%	6.8%	5.2%	3.5%	4.6%	
SN5	Doncaster	2979	1.2%	1.2%	72.8%	7.8%	5.4%	5.8%	5.8%	
SNV	North Yorkshire & York	6802	0.4%	0.8%	74.4%	8.0%	6.0%	4.7%	4.8%	
SNW	East Riding of Yorkshire	2406	0.5%	1.0%	73.9%	8.6%	6.0%	4.9%	5.0%	
SNX	Hull	2303	0.7%	0.7%	72.3%	8.6%	6.0%	5.3%	6.2%	
SNY	Bradford & Airedale	6011	1.5%	2.0%	73.3%	6.9%	5.3%	4.4%	6.2%	
TAN	North East Lincolnshire	1666	0.2%	0.7%	73.5%	7.9%	6.4%	5.2%	6.0%	
	Yorkshire & the Humber	58449	1.3%	1.6%	74.4%	7.5%	5.5%	4.4%	5.4%	
	England	478381	1.3%	1.5%	74.7%	7.7%	5.3%	4.3%	5.4%	

Table 7

Children's BMI classification - reception		Total children measured in year 6	Underweight		Healthy Weight		Overweight		Obese	
PCT Code	PCT		<2nd	2nd-5th	6th-85th	86th-97th	98th	99th	100th	
SEF	North Lincolnshire	1552	1.0%	2.1%	64.7%	7.3%	6.1%	8.2%	10.6%	
SH8	Rotherham	2797	1.1%	1.6%	60.3%	8.5%	7.7%	8.1%	12.8%	
SJ6	Calderdale	2296	1.8%	2.4%	66.3%	7.6%	6.2%	6.8%	8.9%	
SJE	Barnsley	2555	1.4%	1.8%	62.0%	7.2%	6.4%	7.9%	13.3%	
SN1	Leeds	7330	1.8%	2.0%	63.1%	7.4%	6.5%	7.4%	12.0%	
SN2	Kirklees	4638	1.8%	2.7%	62.3%	7.9%	6.4%	7.4%	11.0%	
SN3	Wakefield District	3247	1.2%	1.4%	62.1%	7.9%	7.0%	7.4%	13.1%	
SN4	Sheffield	5045	1.3%	2.2%	65.5%	7.0%	6.3%	7.1%	10.3%	
SN5	Doncaster	3291	1.0%	1.9%	62.9%	7.9%	7.2%	7.9%	11.2%	
SNV	North Yorkshire & York	7043	1.1%	1.6%	67.3%	7.9%	6.5%	6.8%	9.0%	
SNW	East Riding of Yorkshire	3230	0.8%	1.3%	65.3%	7.5%	6.5%	8.0%	9.7%	
SNX	Hull	2421	1.1%	0.9%	60.4%	8.7%	6.7%	7.9%	14.4%	
SNY	Bradford & Airedale	5561	2.3%	2.0%	61.2%	7.0%	6.8%	7.9%	12.9%	
TAN	North East Lincolnshire	1861	0.3%	1.8%	63.2%	7.8%	6.7%	7.2%	12.4%	
	Yorkshire & the Humber	52867	1.4%	1.9%	63.6%	7.6%	6.8%	7.5%	11.4%	
	England	496237	1.4%	1.9%	64.1%	7.6%	6.7%	7.6%	10.8%	

Key to tables

	Significantly lower than England average
	No significant difference to England average
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Figure 7

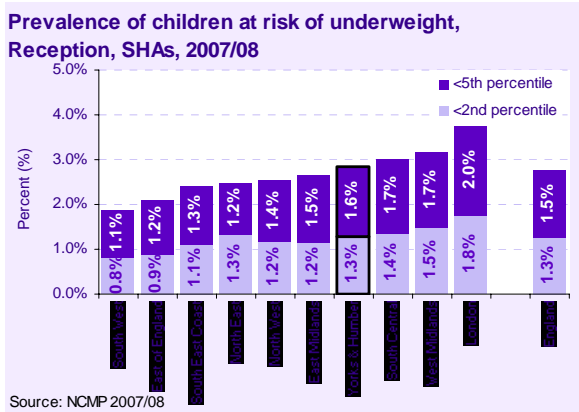
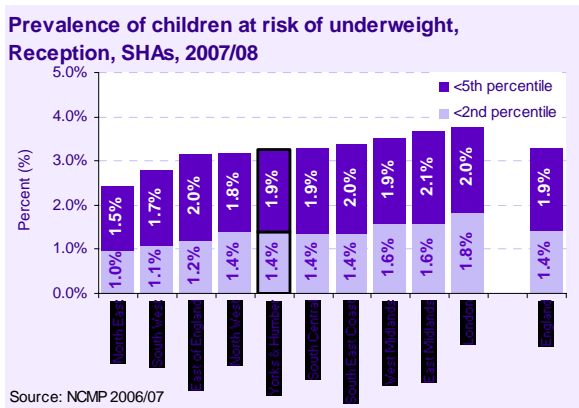


Figure 8



Data quality

Between 2006/07 and 2007/08 the coverage of the NCMP in Yorkshire and the Humber increased from 83.2% to 90.8% of eligible children in Reception and from 77.9% to 89.4% of eligible children in Year 6. A higher coverage rate increases the reliability of any prevalence estimates. PCTs were tasked with obtaining a minimum 85% coverage for 2007/08. In Yorkshire and the Humber only one PCT did not meet this target for Reception children and three PCTs did not meet the target for Year 6 children. School level coverage needs to be considered before reporting at this level. In Yorkshire and the Humber, very low coverage rates (less than 70%) were obtained in 6.4% of schools for Reception children and 6.2% of schools for Year 6 children. This is less than half the levels in 2006/07.

Rounding of height and weight measures

The NCMP guidance asked PCTs to record children's heights and weights to the first decimal place (i.e. height to the nearest mm and weight to the nearest 100g). On this premise, we would expect that around 10% of the values would be at each decimal point (i.e. 10% at .0, 10% at .1, 10% at .2 etc.). For heights recorded in Yorkshire and the Humber, 52.5% of records were at .0 and a further 13.3% were at .5. For weights, 34.0% of records were at .0 and a further 14.9% were at .5 suggesting that data were rounded to the nearest whole or half unit in some instances.

Table 8

PCT	1. % Increase in coverage from 2006/07 to 2007/08		2. % schools in which coverage was below 70%		3. Proportion of records recorded as whole or half number (would be expected to be 20%)	
	Reception	Year 6	Reception	Year 6	Height	Weight
Barnsley	0.1%	3.9%	5.0%	0.0%	38%	20%
Bradford & Airedale	3.5%	6.3%	6.4%	7.6%	100%	33%
Calderdale	2.4%	2.2%	4.7%	4.8%	83%	98%
Doncaster	2.5%	8.0%	13.7%	17.8%	40%	30%
East Riding of Yorkshire	9.2%	5.6%	31.9%	6.8%	52%	28%
Hull	2.4%	14.9%	0.0%	12.7%	64%	23%
Kirklees	-0.6%	8.2%	4.6%	0.9%	69%	21%
Leeds	2.2%	0.5%	3.7%	0.0%	43%	95%
North East Lincolnshire	7.9%	15.8%	0.0%	0.0%	39%	48%
North Lincolnshire	0.3%	2.8%	5.1%	20.7%	100%	97%
North Yorkshire And York	-0.8%	1.6%	2.8%	7.0%	69%	44%
Rotherham	-1.2%	8.8%	2.3%	4.6%	100%	47%
Sheffield	7.1%	4.6%	8.5%	8.0%	42%	64%
Wakefield District	10.2%	31.0%	1.8%	1.9%	100%	20%
Yorkshire & Humber GOR	7.6%	11.4%	6.4%	6.2%	65.9%	48.9%
England	6.0%	9.2%	7.7%	7.3%	46.4%	36.4%

Data quality alert rationale

1. Flag applied where coverage decreased from 2006/07 to 2007/08
2. Flag applied where proportion of schools with low coverage exceeded the Yorkshire & Humber Average
3. Flag applied where proportion of records where the height/weight was a whole or half number was 30% or more (suggestive of rounding)

This is less of an issue for height than it is for weight. The average weight of reception children is around 20kg and therefore the resulting error due to rounding can be up to 5% of the child's weight which could have an impact on the resulting prevalence estimates. The extent to which rounding appears to have occurred varies between PCTs. Where this is greater than 20%, PCTs should consider what actions are needed to prevent this from happening in the future.

## Further Analysis

The Information Centre for Health and Social Care has produced a report highlighting the headline results from the 2007/08 National Child Measurement Programme which can be found at <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/obesity/national-child-measurement-programme:-results-from-the-school-year-2007-08>. This is supported by an online database facilitating access to PCT level data at <http://www.ncmp.ic.nhs.uk/>

The National Obesity Observatory has produced a detailed analysis of the 2007/08 NCMP data including analysis by ethnic group. This can be found at <http://www.noo.org.uk/publications>. They have also provided an online tool to examine data by Primary Care Trust from the NCMP and other data relevant to child obesity. This can be found at <http://www.sepho.nhs.uk/noo/atlas.html>

iView ChiMat has been developed by the Information Centre for Health and Social Care for ChiMat (the Child and Maternal Health Observatory based within YHPHO) to allow access to more detailed information on IC datasets for those working in the NHS and wider public sector. The NCMP data provides indicators for different geographical areas including breakdowns by Local Authority District unavailable elsewhere. It can be found at <http://www.apho.org.uk/resource/view.aspx?QN=CHMTIV>

Yorkshire and Humber Public Health Observatory has a complete set of quality assured data collected as part of the 2006/07 and 2007/08 National Child Measurement Programmes. This is available to Primary Care Trusts for further local analysis.

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