

Weight Trends for Children in Hull, 2010/11

REPORT ON THE NATIONAL CHILD MEASUREMENT PROGRAMME FOR HULL

KEY POINTS

- *Reception Year and Year 6 achieved excellent coverage rates of 97% and 96% respectively*
- *75% of Reception year children were of healthy weight; 62% of Year 6 children were of healthy weight*
- *Compared to last year, Obesity levels fell for Reception Year children but increased in Year 6*
- *10% of Reception Year children were obese, a reduction of 1.6% from last year*
- *By Year 6 there were 23% of children classified as obese, an increase of 2.0% from last year*
- *There are still higher obesity rates for boys at both age groups*
- *Hull's childhood obesity levels are slightly above the national average in Year 6*
- *Healthy weight levels in 2010/11 do not vary significantly across Hull's localities, wards and areas*

Summary

Overall a mixed picture of good news – high coverage rates and falling Obesity for Reception year; and bad news – obesity rates for Year 6 children reaching a new high. This is disappointing as trends in recent years showed that the rise in childhood obesity in Hull from 1995 to 2005 had “plateaued” since 2006. Figures from one year do not yet constitute a new upward trend, but careful monitoring needs to be maintained.

Heights and weights of primary school children in Hull aged 4 & 5 (Year R) and 10 & 11 (Year 6) were recorded during the 2010/11 academic year as part of the Department of Health’s National Child Measurement Programme. Valid figures for Body Mass Index (BMI) were calculated for 97% in Year R, and 96% in Year 6.

The proportion of healthy weight children in Reception year for 2010/11 has risen for boys and girls, shown in Table 2. For girls, 76.7% are of healthy weight, an increase of 1.7 percentage points on the previous year. For boys, 74.1% are of healthy weight, an increase of 0.6 percentage points on the previous year.

The proportion of obese children in Reception year for 2010/11 has fallen for boys and girls, shown in Table 2. For girls 9.2% are obese, a fall of 1 percentage point on the previous year. For boys 10.6% are obese, a sharp fall of 2.2 percentage points on the previous year, but one which still leaves boys with a higher obesity rate than girls.

The proportion of Year 6 children who are of healthy weight has fallen for boys and girls in 2010/11, shown in Table 4. For girls, 61.1% are of healthy weight, a decrease of 4 percentage points on the previous year. For boys, 61.9% are of healthy weight, a decrease of 1.6 percentage points on the previous year.

The proportion of Year 6 children who are obese has risen for boys and girls in 2010/11, shown in Table 4. For Year 6 girls 21.9% are obese, an increase of 2 percentage points on the previous year. For Year 6 boys 23.9% are obese, an increase of 2.5 percentage points from the previous year.

The proportion of Year 6 girls who are overweight for 2010/11 is 16.1%, an increase of 2.1 percentage points on the previous year. The proportion of Year 6 boys who are overweight for 2010/11 is 14.0%, a slight increase of 0.2 percentage points on the previous year.

In relation to the national picture, by Year 6 Hull has obesity rates 3 to 4 percentage points higher than the national average. However, once deprivation (measured by the Index of Multiple Deprivation 2007) is taken account of, Hull’s obesity prevalence at both Year R and Year 6 is close to what is expected

It is difficult to compare healthy weight or obesity levels in individual small areas, as, even at the Area Committee level, there are relatively wide confidence estimates for percentages in any particular Area.

Main Report

Introduction

Rates of obesity and overweight amongst children in England have been rising since the mid 1970s. The national target which the previous labour government announced in October 2007 was “by 2020, we aim to reduce the proportion of overweight and obese children to 2000 levels”. This was revised by the Coalition Government in October 2011, where Healthy Lives, Healthy People: A call to action on obesity in England¹ set out the government’s new national ambition for “a sustained downward trend in the level of excess weight in children by 2020”. The proposed new Public Health indicator focuses on the proportion of children who are in the “Healthy Weight” category; since very few children are underweight, the healthy weight group are in effect the opposite of the Overweight and Obese group.

The government-commissioned Foresight report “Tackling Obesities” (2007) predicted a “striking” rate of increase in overweight and obesity in children by 2050, and with the project’s modelling indicating that around 25% of all children under 16 could be obese². However The National Heart Forum has recently produced evidence that the rate of increase in childhood obesity may be starting to slow. Comparing the data used for the analysis in the Foresight report (1993-2004) with the most recent 8 years of Health survey for England (HSE) data (2000-2007) suggests that by 2020 the proportion of boys aged 2-11 years who will be overweight falls from 22% to 17% and the proportion of obese falls from 20% to 13%. For girls aged 2-11 years the proportion of overweight sharply declines from 34% to 17% and the proportion obese from 14% to 10%³.

Data Submission

Data collected under the National Child Measurement Programme (NCMP) from Hull schools was recorded on the Child Health Module of SystemOne, a Community and Primary Care Information system. Heights and weights of children recorded in other settings, such as doctor’s surgeries, were also stored on the system, and if available this information was used if no school-based data was available. An extract of 2010/11 data was submitted to the NHS Information Centre within the required timescale. This data will be processed by the NHS Information Centre and used to calculate participation and obesity rates for each PCT⁴ and for further analysis at regional level by Public Health Observatories. The data analysed in this report is based on the data submitted to the information centre, but is augmented by data from schools in the East Riding of Yorkshire attended by Hull residents, and also by independent and LA Special schools; this enables a

¹ Healthy lives, healthy people: a call to action on obesity in England. Dh 2011 Crown Copyright http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_130401

² Butland B, Jebb S, Kopelman P, Mardell J, McPherson K, Thomas S, Parry V. Government Foresight programme. Government Office for Science. Foresight Tackling Obesities: Future Choices – Project report, 2007.

³ McPherson k, Brown M, Marsh T and Byatt T. National Heart Forum Modelling Team. Obesity: Recent Trends in Children Aged 2-11y and 12-19y. Analysis from the Health Survey for England 1993 – 2007, 2009.

⁴ National Child Measurement Programme: England 2009/10 school year. The NHS Information Centre December 2010. <http://www.ic.nhs.uk/ncmp>

broader “Hull population” viewpoint to be taken, rather than the “Hull Local Authority Schools” viewpoint given by the NCMP data.

Data completeness

Height and weight measurements were recorded for children in their first school year (Year R), aged 4¼ years or more but less than six years, by school nurses in Hull schools. For the 2010/11 school year the coverage rate for children in Hull Local Authority schools was 97% for Year R and 96% for Year 6. The overall coverage levels are well above target and represent an excellent achievement by all involved in the NCMP in Hull.

Classification of underweight, healthy weight, overweight and obesity

Body mass index (BMI) indicates overall body mass assessing the height-to-weight relationship. It is calculated as “Weight (in kilograms) divided by Height (in metres) squared”. For adults, people with a BMI of over 30 are classified as Obese, and a BMI of over 25 is classed as Overweight. However for children the BMI threshold levels are different, depending on the age and gender of the child. In line with the national NCMP analysts, we have used the British 1990 Growth Reference (UK90)⁵ for BMI and the 2nd, 85th and 95th centiles to define children as underweight, overweight or obese for the purposes of population monitoring. Different thresholds apply for individual clinical assessment.

The broad trends in Table 4 show that the healthy weight rate for both boys and girls fluctuated between 2000 and 2008 but has seen a small but steady increase since then. The current Government has changed the focus of the child obesity target within the proposed Public Health Outcomes Framework, to one of reporting *healthy weight* amongst Year R and Year 6 children. The subsequent tables, charts and commentary will therefore focus on the trends around healthy weight to reflect the change in national focus.

In this report all children (including those in private and special schools) are classified according to their area of residence, rather than school. This enables geographical results such as deprivation and Local Authority area to be presented. The only exception is in the final section of this report where school-based figures are presented.

⁵ Cole TJ, Freeman JV, Preece MA. British 1990 growth reference centiles for height, weight, body mass index and head circumference fitted by maximum penalised likelihood. *Stat. Med* 1998; 17:407-29

³ National Child Measurement Programme: England 2009/10 school year. The NHS Information Centre December 2010. <http://www.ic.nhs.uk/ncmp>

Trends in healthy weight Reception year children (4 and 5 year olds)

Please note that the information reported in this section differs from that originally circulated to colleagues in December 2011. The first release analysed this information on a school-year basis, however this version analyses the information based on the school year in which the child was born. Although most children had their BMI measured within the school year in which the child had their 5th or 11th birthday, some children had their measurements taken one school year earlier or later. By analysing the data on school year of birth, this ensures that the correct year is used for the appropriate age.

Reception year children (4 and 5 year olds)

Table 1 shows the numbers and Table 2 the proportion of BMI categories for children in Reception year for the last 12 years.

Table 1: Numbers of Year R by BMI category Hull 1999/00 – 2010/11

		Underweight	Healthy Weight	Overweight	Obese	Total
Girls	1999/00	27	1,152	154	121	1,454
	2000/01	32	1,152	136	124	1,444
	2001/02	33	1,093	150	124	1,400
	2002/03	20	1,068	178	137	1,403
	2003/04	17	929	152	106	1,204
	2004/05	14	886	150	148	1,198
	2005/06	3	923	170	141	1,237
	2006/07	4	889	174	113	1,180
	2007/08	9	972	184	141	1,306
	2008/09	8	1,007	196	129	1,340
	2009/10	5	1,081	208	141	1,435
	2010/11	15	1,138	195	136	1,484
Boys	1999/00	51	1,155	201	159	1,566
	2000/01	38	1,085	171	149	1,443
	2001/02	54	1,156	187	169	1,566
	2002/03	18	1,108	173	146	1,445
	2003/04	19	962	180	151	1,312
	2004/05	19	903	200	164	1,286
	2005/06	5	940	217	168	1,330
	2006/07	11	940	200	170	1,321
	2007/08	10	932	197	172	1,311
	2008/09	9	1,118	239	182	1,548
	2009/10	8	1,075	196	187	1,466
	2010/11	12	1,155	226	165	1,558

In 2010/11 the numbers of girls who were of a healthy weight increased slightly whilst numbers who were obese or overweight fell; this is in part due to a small rise in numbers in the Reception year cohort and also due to a small rise in the numbers who were underweight. Proportionally, this is reflected with small rises in those who are of healthy weight and small decreases in those who are overweight or obese, amongst girls. For boys

the numbers who were of a healthy weight increased slightly, along with a rise in the numbers who were overweight. This is due to both an increase in the cohort and a fall in the actual number who were obese. Proportionally, this is reflected with small rises in those who are of healthy weight or overweight amongst boys.

Table 2: Percent of Year R by BMI category Hull 1999/00 – 2010/11

		% Underweight	% Healthy Weight	% Overweight	% Obese	Total (number)
Girls	1999/00	1.86	79.23	10.59	8.32	1,454
	2000/01	2.22	79.78	9.42	8.59	1,444
	2001/02	2.36	78.07	10.71	8.86	1,400
	2002/03	1.43	76.12	12.69	9.76	1,403
	2003/04	1.41	77.16	12.62	8.80	1,204
	2004/05	1.17	73.96	12.52	12.35	1,198
	2005/06	0.24	74.62	13.74	11.40	1,237
	2006/07	0.34	75.34	14.75	9.58	1,180
	2007/08	0.69	74.43	14.09	10.80	1,306
	2008/09	0.60	75.15	14.63	9.63	1,340
	2009/10	0.35	75.33	14.49	9.83	1,435
2010/11	1.01	76.68	13.14	9.16	1,484	
Boys	1999/00	3.26	73.75	12.84	10.15	1,566
	2000/01	2.63	75.19	11.85	10.33	1,443
	2001/02	3.45	73.82	11.94	10.79	1,566
	2002/03	1.25	76.68	11.97	10.10	1,445
	2003/04	1.45	73.32	13.72	11.51	1,312
	2004/05	1.48	70.22	15.55	12.75	1,286
	2005/06	0.38	70.68	16.32	12.63	1,330
	2006/07	0.83	71.16	15.14	12.87	1,321
	2007/08	0.76	71.09	15.03	13.12	1,311
	2008/09	0.58	72.22	15.44	11.76	1,548
	2009/10	0.55	73.33	13.37	12.76	1,466
2010/11	0.77	74.13	14.51	10.59	1,558	

Figures 1 and 2 show the trends in Table 2 diagrammatically. Figure 1 shows the trends over the last twelve years in the proportions of Reception Year girls in each of the four BMI categories. It shows that the rise in the proportion who are obese appears to have been halted, with levels in 2010/11 being very similar to rates observed prior to the peaks in 2004-2006. This is reflected in the increased proportions of those reported as of healthy weight, which has shown gradual improvement over the past 3 school years. Although there has been a rise in the proportion who are underweight, numbers are very small. For Reception Year boys Figure 2 shows that there has been a positive trend in the proportions who are of healthy weight from a low of 70% reported in 2004-2005. The trend is reflected in a general small decline in those who are overweight or obese.

Figure 1: BMI categories of Year R girls, Hull school years ending 2000 to 2011

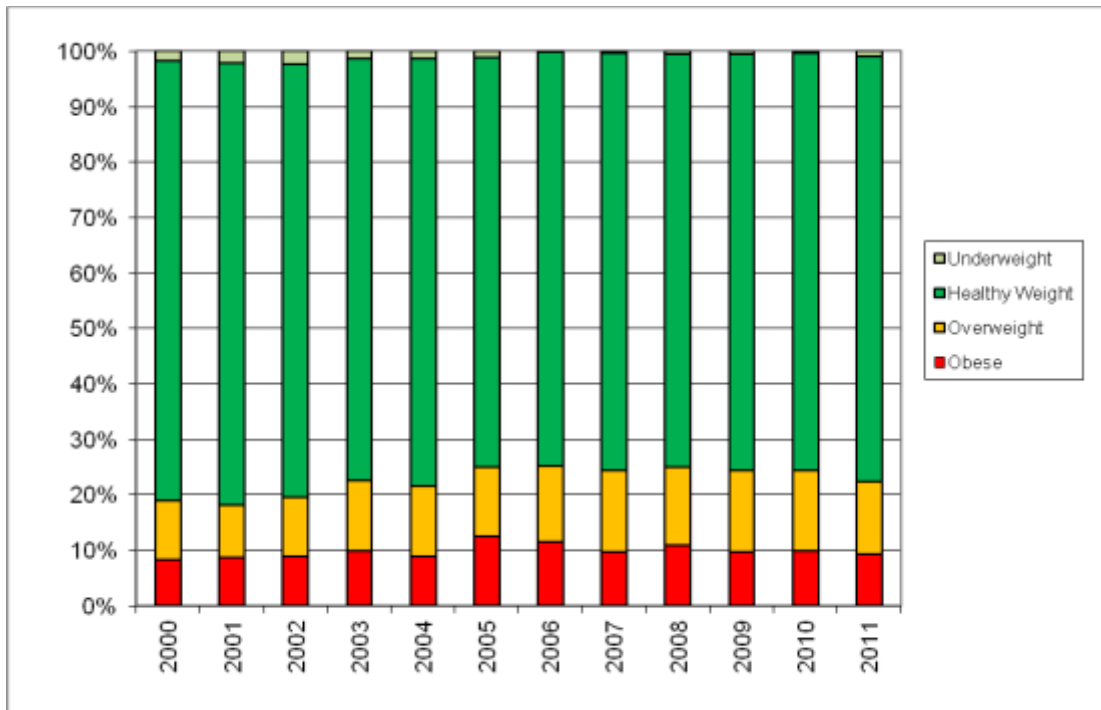
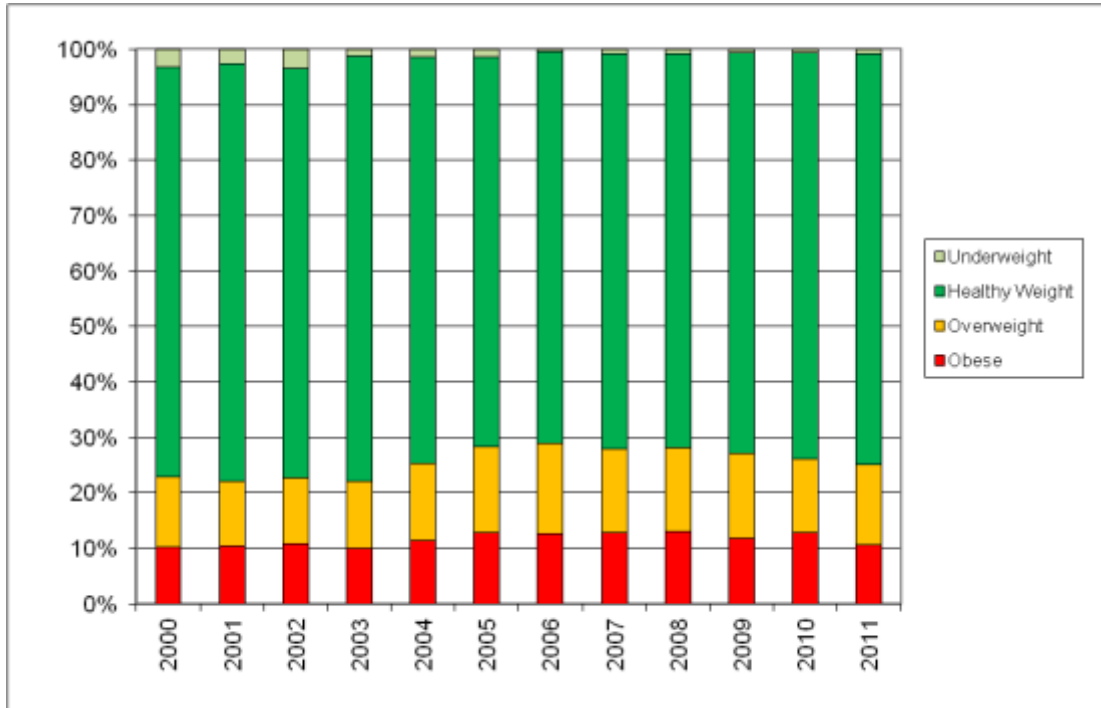


Figure 2: BMI categories of Year R boys, Hull school years ending 2000 to 2011



Trends in healthy weight – Year 6 children (10 or 11 year olds)

In Hull the first routine measurements were made for 10 and 11 year olds (Year 6) in the year 2005/06.

Levels of healthy weight in Year 6 children for 2010/11 have fallen slightly from the previous year, and are shown in Tables 3 & 4. This is reflected in the increased proportion of girls and boys who are overweight or obese since the previous year.

Table 3: Numbers of Year 6 by BMI category, Hull 2005/06 – 2010/11

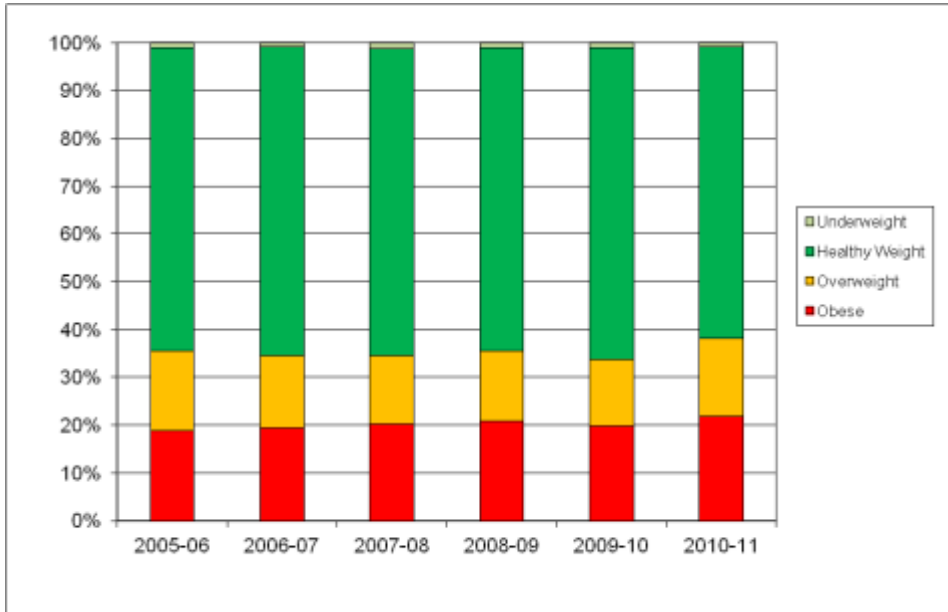
		Underweight	Healthy Weight	Overweight	Obese	Total
Girls	2005/06	13	789	207	234	1,243
	2006/07	11	769	180	231	1,191
	2007/08	15	811	181	256	1,263
	2008/09	15	813	190	267	1,285
	2009/10	13	813	173	248	1,247
	2010/11	11	745	198	267	1,221
Boys	2005/06	12	825	206	266	1,309
	2006/07	14	737	147	227	1,125
	2007/08	15	824	223	341	1,403
	2008/09	9	853	191	301	1,354
	2009/10	17	840	182	286	1,325
	2010/11	4	807	183	311	1,305

Table 4: Percent and numbers of Year 6 by BMI category, Hull 2005/06 – 2010/11

		% Underweight	% Healthy Weight	% Overweight	% Obese	Total (number)
Girls	2005/06	1.05	63.48	16.65	18.83	1,243
	2006/07	0.92	64.57	15.11	19.40	1,191
	2007/08	1.19	64.21	14.33	20.27	1,263
	2008/09	1.17	63.27	14.79	20.78	1,285
	2009/10	1.04	65.20	13.87	19.89	1,247
	2010/11	0.90	61.02	16.22	21.87	1,221
Boys	2005/06	0.92	63.03	15.74	20.32	1,309
	2006/07	1.24	65.51	13.07	20.18	1,125
	2007/08	1.07	58.73	15.89	24.31	1,403
	2008/09	0.66	63.00	14.11	22.23	1,354
	2009/10	1.28	63.40	13.74	21.58	1,325
	2010/11	0.31	61.84	14.02	23.83	1,305

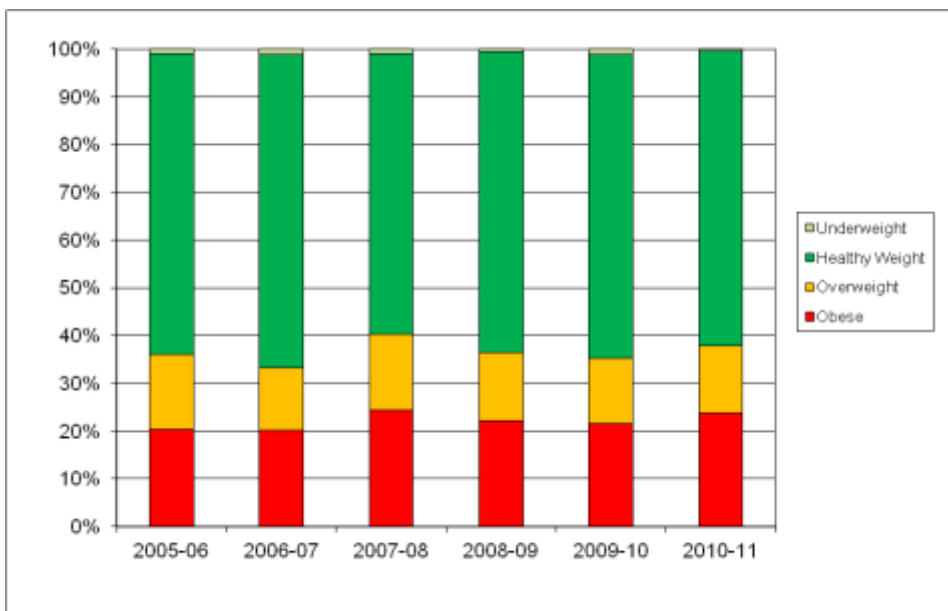
Figure 3 shows that the proportion of Year 6 girls who are of healthy weight has fluctuated within the range 61-65% over the past 6 years, to the lowest recorded rate this year. This is reflected mostly by variations in the proportions who are overweight, rather than the proportions who are either underweight or obese which have remained more constant at around 1% and 20% respectively.

Figure 3: BMI categories of Year 6 girls, Hull 2005/06 to 2010/11



For boys, Figure 4 shows that the recent small reductions in the levels of obesity have ceased, and this year has the second highest proportion since records were started in 2005-06. This is reflected in the drop in the proportion of those of a healthy weight.

Figure 4: BMI categories of Year 6 boys, Hull 2005/06 to 2010/11



BMI levels in Hull Localities and Areas

Levels of healthy weight for Year R and Year 6 in Hull City Council Area Committee areas are shown in Table 5. For every area healthy weight levels are higher in Year R by between 9 and 16 percentage points. However variations in Area level rates can occur by chance because of the relatively small numbers of children involved, and only very tentative conclusions can be drawn from Table 5. This can be seen from Figure 5 which shows the Year R Male and Female Combined healthy weight rates 2010/11, with both the rate and the corresponding 95% confidence interval (the range within which we are 95% sure that the true or underlying rate lies). These intervals all overlap, showing that we cannot say any one rate is significantly higher or lower than any other rate, despite differences of up to 8 percentage points between the estimates of the area rates. A similar pattern is shown in Figure 6 for Year 6. Were boys and girls to be charted separately then the confidence intervals would be even longer because of the smaller sample sizes.

Table 5: Prevalence of Healthy Weight in Year R and Year 6 by Hull Area Committee areas 2010/11

Area	Healthy weight level (percent)		Change in healthy weight percentage from Y R to Y6
	Year R 4 or 5 year olds	Year 6 10 or 11 year olds	
East	75.2	59.7	-15.5
North Carr	73.2	58.1	-15.1
Northern	77.6	63.0	-14.6
Park	76.0	62.9	-13.1
Riverside	75.4	59.6	-15.8
West	74.9	62.2	-12.7
Wyke	75.4	66.0	-9.4
HULL	75.4	61.5	-13.9

Figure 5 Year R Boys and Girls Healthy Weight Rates and 95% Confidence Intervals, Hull Areas, 2010/11

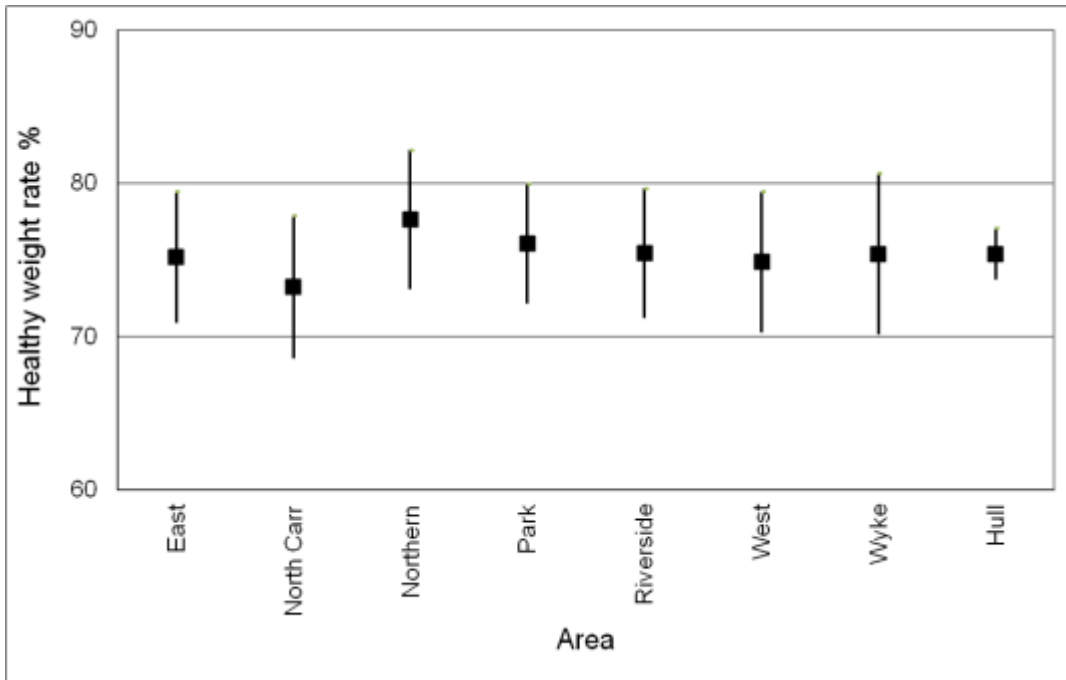
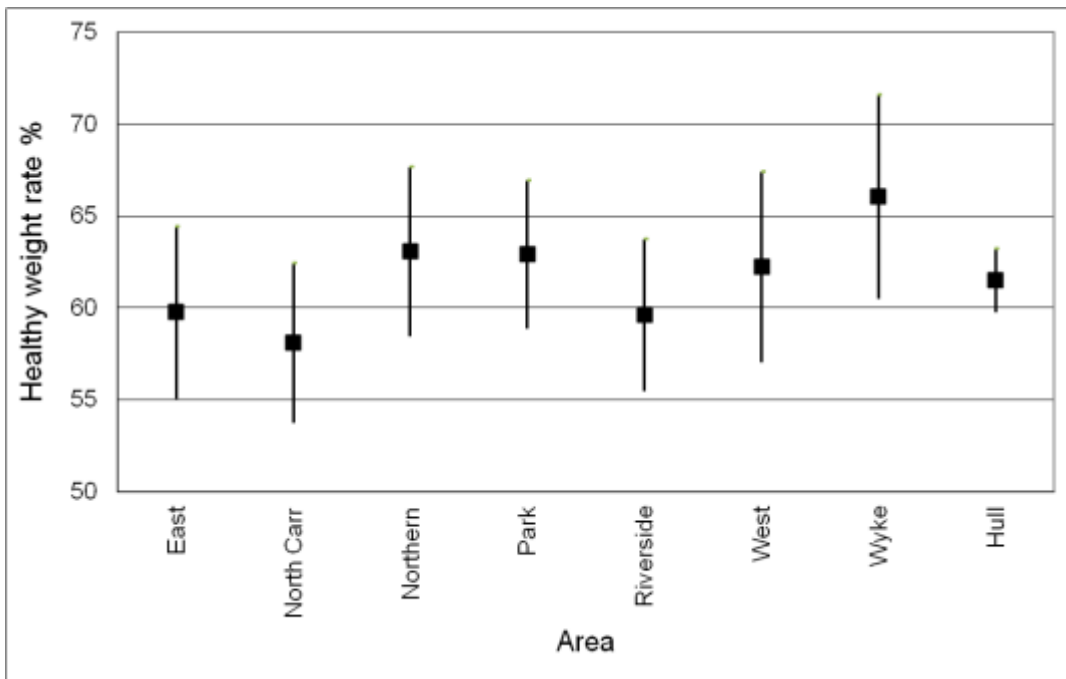


Figure 6: Year 6 Boys and Girls Healthy Weight Rates and 95% Confidence Intervals, Hull Areas, 2010/11



National comparison

The 2010/11 levels of healthy weight in Hull are slightly lower than the most recent national figures, also for 2010/11, as can be seen from Table 6 and Figure 7 for Reception Year and Table 7 and Figure 8 for Year 6. The difference is greater in Year 6. In Year R this difference is mainly attributable to the slightly greater numbers who are overweight or obese; in Year 6 this is due to an increased number who are overweight or obese amongst girls, and obese only, amongst boys.

The 2010/11 England report included an analysis of the effect of deprivation on Obesity levels which showed that there was a clear trend for areas with a higher deprivation score to generally have higher levels of obesity for Year R and Year 6 children. When allowing for this Hull's rates of obesity for Year R and Year 6 pupils in 2010/11 were better than expected in relation to England's figures.

Table 6: Percent and numbers of Year R by BMI category, Hull 2010/11, England 2010/11

	% Underweight	% Healthy Weight	% Overweight	% Obese	%Total
Hull Girls	1.0	76.7	13.1	9.2	100
England Girls	0.8	77.9	12.6	8.8	100
Hull Boys	0.8	74.1	14.5	10.6	100
England Boys	1.2	75.0	13.8	10.1	100

Figure 7: BMI categories of Year R pupils, Hull 2010/11 and England 2010/11

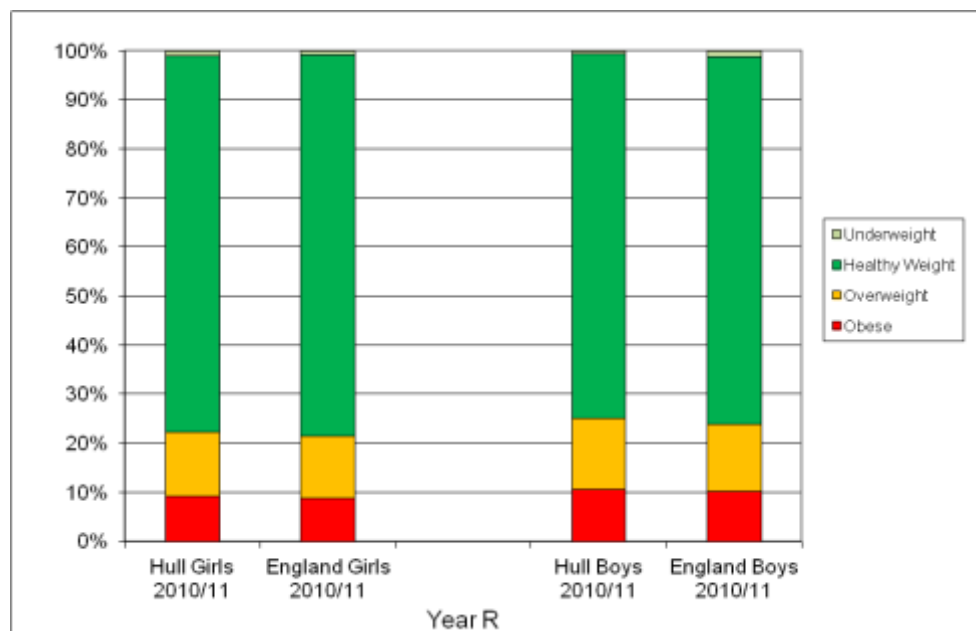
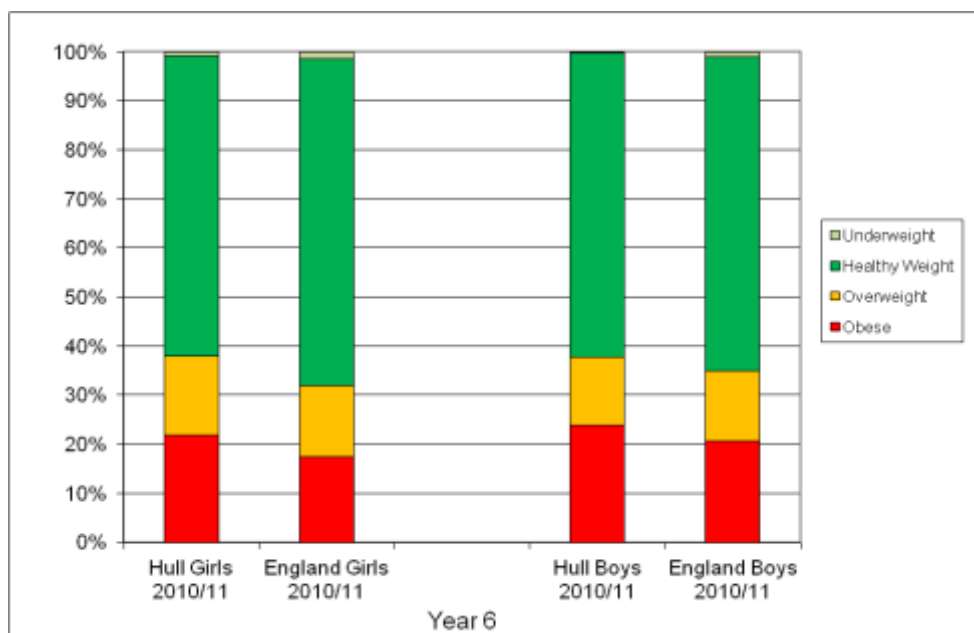


Table 7: Percent and numbers of Year 6 by BMI category, Hull 2010/11, England 2010/11

	% Underweight	% Healthy Weight	% Overweight	% Obese	%Total
Hull Girls	0.9	61.1	16.1	21.9	100
England Girls	1.5	66.6	14.4	17.4	100
Hull Boys	0.3	61.9	14.0	23.9	100
England Boys	1.1	64.0	14.3	20.6	100

Figure 8: BMI categories of Year 6 pupils, Hull 2010/11 and England 2010/11



BMI & Socio-economic categories

The most widely-used measure of material deprivation for small areas is the Index of Multiple Deprivation (IMD). Analyses of trend data in previous reports showed that in Hull there is a weak association, with poorer areas tending to have, on average, slightly higher obesity levels. However this association is very weak, so that many of Hull's poorest areas have lower obesity rates than many of the better off areas, and is negligible for most practical purposes. For instance this means there would be no reason to target an anti-obesity campaign at poorer areas within Hull.

Another way of classifying small areas is ACORN, a classification model of different characteristics of residents which uses various nationally-available datasets to create small areas where groups of people are deemed to be similar in socio-economic terms. There will be some people living in the area whose characteristics are very much different from the dominant ACORN category for that area. Therefore, the classifications for a particular area should be used as a guide only as to the characteristics of residents.

Table 8: Prevalence of BMI in Year R, by ACORN category, 2010/11

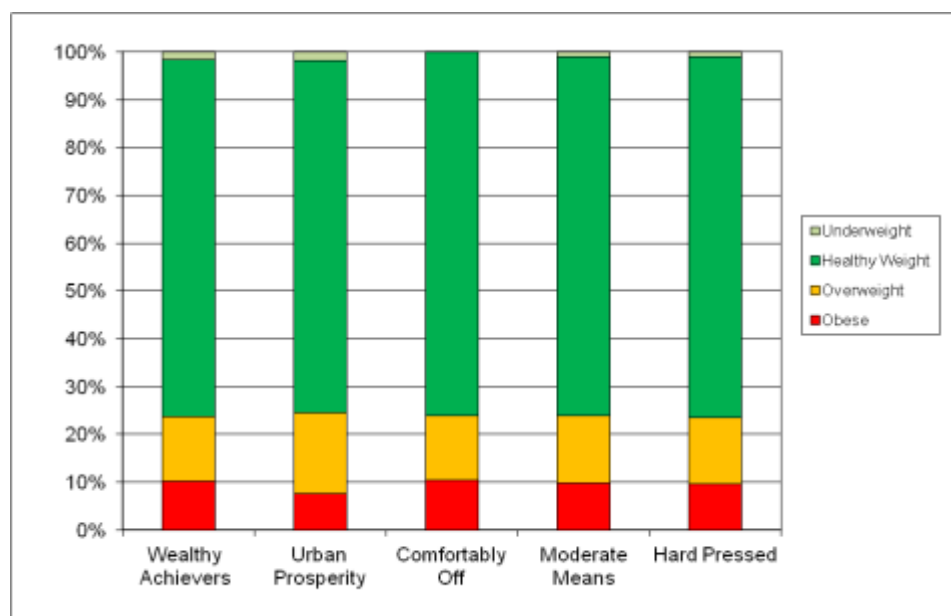
	% Underweight	% Healthy Weight	% Overweight	% Obese
Wealthy Achievers (n=127)	1.6	74.8	13.4	10.2
Urban Prosperity (n=53)	1.9	73.6	17.0	7.5
Comfortably Off (n=521)	0.0	76.0	13.6	10.4
Moderate Means (n=880)	1.0	75.1	14.0	9.9
Hard Pressed (n=1,449)	1.0	75.4	13.9	9.7

Table 9: Prevalence of BMI in Year 6, by ACORN category, 2010/11

	% Underweight	% Healthy Weight	% Overweight	% Obese
Wealthy Achievers (n=126)	1.6	63.5	16.7	18.3
Urban Prosperity (n=39)	0.0	66.7	10.3	23.1
Comfortably Off (n=441)	0.2	61.9	15.9	22.0
Moderate Means (n=731)	0.8	63.3	13.8	22.0
Hard Pressed (n=1,182)	0.5	59.8	15.5	24.2

Within those children in Year R, there is no clear trend in prevalence of healthy weight decreasing with degree of affluence as measured by ACORN. Indeed, healthy weight is less prevalent amongst the two most affluent categories as seen in Figure 9.

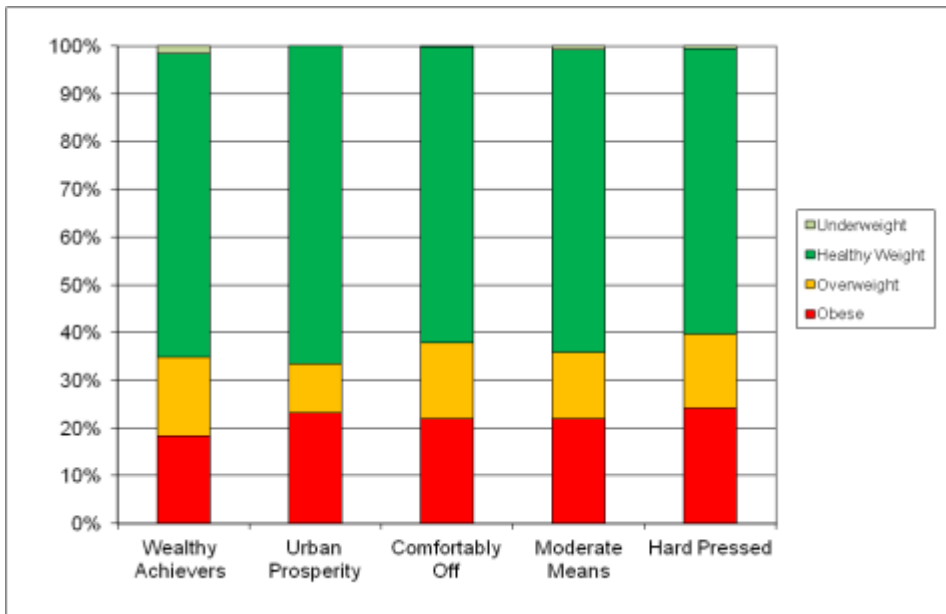
Figure 9: BMI categories by ACORN group, 2010/11 – Year R pupils



Within those children in Year 6, there is a slightly clearer trend of greater prevalence of healthy weight amongst the more affluent groups, and the least affluent group having the lowest prevalence of healthy weight. Additionally the least affluent group also has the greatest prevalence of obesity. However it should be noted that a large prevalence of overweight and obesity can be found in the two most affluent groups (16.7% overweight in wealthy achievers and 23.1% obese in urban prosperity), which is visible in Figure 10 below.

It must be noted however that the numbers within the wealthy achievers and urban prosperity groups are much lower than the numbers within the other three ACORN categories.

Figure 10: BMI categories by ACORN group, 2010/11 – Year 6 pupils



BMI categories of Hull Schoolchildren

This section gives results only for children from Hull Local Authority schools (so private schools are excluded – primarily Hymers College and Froebel House, as are Hull residents at state schools in other Local Authority areas, mostly the East Riding of Yorkshire). This means 274(5%) Hull residents with valid BMIs are not included in the Hull LA schools dataset. Conversely 53 East Riding residents at Hull schools are included in the Hull LA schools data, comprising 1.0%.

Reception Year: In 2010/11, rates of obesity for reception year (Year R) girls were 9.1%, and 10.4% for boys, see Table 10 below. A further 13.2% of girls and 14.0 % of boys were overweight. However three quarters of both boys’ and girls’ BMIs were within the Healthy Weight band. Hull’s current Year R obesity rates are slightly lower than the latest national (England) figures of 9.2% for girls and 10.4% for boys in 2009/10³.

Table 10: Numbers and percentages for Year R Hull LA Schools, by BMI category, 2010/11

		Underweight	Healthy weight	Overweight	Obese	Total
Girls	numbers	14	1,082	186	128	1,410
	percentage	1.0	76.7	13.2	9.1	100.0
Boys	numbers	10	1,104	206	154	1,474
	percentage	0.7	74.9	14.0	10.4	100.0

Year 6: For children in Year 6 (aged 10 or 11), rates of obesity in 2010/11 were 22.2% for girls, and 23.8% for boys, see Table 11 below. These rates are considerably higher than Year R. A further 15.7% of girls and 13.6% of boys were overweight. However nearly two thirds of both boys' and girls' BMIs were within the desirable weight band. Hull's current obesity rates are higher than national figure of 17% for girls and 20.4% for boys in 2009/10³.

Table 11: Numbers and percentages for Year 6 Hull LA Schools, by BMI category, 2010/11

		Underweight	Healthy weight	Overweight	Obese	Total
Girls	numbers	11	715	184	259	1,169
	percentage	0.9	61.1	15.7	22.2	100.0
Boys	numbers	4	770	168	295	1,237
	percentage	0.3	62.2	13.6	23.8	100.0

Future Work

The findings of this report will be incorporated into the current Hull JSNA Foundation document, and also into other updated JSNA reports at <http://www.jsnaonline.org/index.htm> Summary results are being fed back to individual schools, although detailed analyses for individual schools may not be produced because of data confidentiality restrictions. When the new national figures for 2010/11 are published (due 14 December 2011) the national comparison section will be updated.

Data will continue to be collected from schools to enable further monitoring to continue on an annual basis.

Further information on childhood BMI rates in Hull can be found in reports on the Hull Public Health Sciences website at <http://www.hullpublichealth.org/Pages/obesity.htm>

TG, DC: December 2011