National Childhood Measurement Programme (NCMP) Obesity Report

Analysing Five Years of Data

2012-2017

For any queries please contact

Data and Analysis
Planning, Performance and Change
Gloucestershire County Council

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Introduction to the National Childhood Measurement Programme (NCMP)

The National Child Measurement Programme (NCMP) measures the height and weight of children in reception class (aged 4 to 5) and year 6 (aged 10 to 11), to better understand and assess overweight and obesity levels in children within state maintained primary schools.

Local authorities are asked each year to collect data on children’s height and weight from all state maintained schools within their area. The data are submitted to NHS Digital and all of the returns are collated and validated centrally. Heights and weights are measured and used to calculate a Body Mass Index (BMI) centile. The measurement process is overseen by trained healthcare professionals in schools.

The NCMP data can be used nationally to support local public health initiatives and locally to inform the planning and delivery of services for children. The programme is recognised internationally as a world-class source of public health intelligence.

The NCMP was set up in line with the government’s strategy to tackle obesity and to:

- inform local planning and delivery of services for children
- gather population-level data to allow analysis of trends in growth patterns and obesity
- increase public and professional understanding of weight issues in children
- Be a vehicle for engaging with children and families about healthy lifestyles and weight issues through feedback of individual results to families

<table>
<thead>
<tr>
<th>BMI Classification</th>
<th>For Population Monitoring BMI Centile Range</th>
<th>For Individual (Clinical) monitoring BMI Centile Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese/Very Overweight</td>
<td>Equal to/Greater than 95th centile</td>
<td>Equal to/Greater than 98th centile</td>
</tr>
<tr>
<td>Overweight</td>
<td>Equal to/Greater than 85th and less than 95th centile</td>
<td>Equal to/Greater than 91st and less than 98th centile</td>
</tr>
<tr>
<td>Healthy Weight</td>
<td>Greater than 2nd and less than 85th centile</td>
<td>Greater than 2nd and less than 91st centile</td>
</tr>
<tr>
<td>Underweight</td>
<td>Less than/Equal to 2nd centile</td>
<td>Less than/Equal to 2nd centile</td>
</tr>
</tbody>
</table>

Figure 1 – Body Mass Index Classifications for NCMP

The NCMP publishes prevalence data using the British 1990 growth reference (UK90) for BMI and the 2nd, 85th and 95th centiles to define children as underweight, overweight or obese according to age and sex. This definition is the most commonly used in England for population monitoring—for example in Health Survey for England (HSE) figures.

In clinical settings or when monitoring the BMI of individual children, the 2nd, 91st and 98th centiles of the UK90 reference are used in the UK to classify the BMI of individual children as underweight, healthy, overweight or obese, taking into account the expected variation in BMI by age and sex. The NCMP parental feedback letters issued by Clinical Commissioning Groups (CCGs) use these clinical cut-offs to assign children to a BMI classification.

In children, BMI is adjusted for a child’s age and gender against reference charts to give a BMI percentile (or centile). This compares the child’s BMI to other children of the same age and gender. For example, if a boy is ten years old and his BMI falls at the 60th percentile, that means that 40% of ten-year old boys have a higher BMI and 60% have a lower BMI than that child.

The following analysis focuses on obesity only (not overweight) which include children measured being equal or over the 95th centile on the British 1990 growth reference (UK90) for population monitoring in Gloucestershire over the last five years. This is highlighted yellow in Figure 1.

The Gloucestershire Health and Wellbeing Strategy highlighted maintaining a healthy weight as a priority area, this reflects escalating rates and the serious health and financial consequences obesity brings. Of particular concern is the increasing number of overweight and obese children and young people, with current estimates suggesting that by 2050 nearly 25% of children in the UK will be obese and nearly 40% will be overweight.

The effects of obesity on children’s current and future health such as severe type 2 Diabetes, asthma, sleep apnoea and musculoskeletal problems are just some of the medical conditions more common in obese children and young people. Overweight and obese children are also more likely to become obese adults, have a higher risk of morbidity, disability and premature mortality in adulthood. Obesity in childhood and adolescence is also associated with low self-esteem and depression.

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2 Obesity may also be referred to as Very Overweight.
3 https://www.gloucestershire.gov.uk/media/2941/joint_health_and_wellbeing_strategy-56736.pdf
1. Gloucestershire Obesity Rates and National/Regional Obesity Rates

**National Comparison:**

For each of the past eight years of recording NCMP data (since 2008/09), the obesity rate of Reception age children in Gloucestershire has been *not significantly different to the England average.*

The current prevalence (2016/17) of obesity in Reception age children is 9.2% in Gloucestershire, 8.8% in the South West Region and 9.6% in England.

Since local collection of NCMP data began in 2007/08, the obesity rate of Year 6 children for each year going forward to 2016/17 in Gloucestershire has been *significantly better than the England average.*

The current prevalence (2016/17) of obesity in Year 6 age children is 17.1% in Gloucestershire, 16.2% in the South West Region and 20% in England.

**Regional Comparison:**

When comparing Gloucestershire against the South West region, obese Reception age prevalence is *not significantly different* to the regional average having been this case for the past 4 recording years of NCMP.

For Year 6 children in Gloucestershire, rates are generally higher in the county each year compared against the region but have only experienced two years over the last decade where obesity prevalence is significantly worse than the regional average. Currently (2016/17 rates) show the county to have *not significantly different* rates to the regional average. This has been the case for 7 of the last 10 years of recording.

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2. Gloucestershire’s Most Similar Areas

CIPFA, the Chartered Institute of Public Finance and Accountancy, is the professional body for people in public finance, and they manage a *Nearest Neighbours* model which seeks to measure similarity between Local Authorities for benchmarking exercises based around a range of socio-economic indicators.

The following section takes into account five years of pooled data with Gloucestershire’s rate significantly higher than the CIPFA average rate and equal to the national rate. Gloucestershire has the fifth highest rate in obesity prevalence in reception age children among the other 15 local authorities deemed as a *nearest neighbour* to Gloucestershire.

![Figure 2 – Obesity in Reception Age 2012-17 Gloucestershire and their Nearest CIPFA Neighbours](image)

9 Source: CIPFA Stats Publisher and [http://www.cipfa.org/services/cipfastats/nearest-neighbour-model](http://www.cipfa.org/services/cipfastats/nearest-neighbour-model)
Rates of obesity rise among all areas when children reach Year 6. Gloucestershire has the sixth highest rate of obesity when compared against its peers and sits slightly above on the CIPFA average rate but is no longer significantly greater as was shown in Figure 2. Figure 3 also shows the Gloucestershire rate to be significantly lower than the England rate.

![Year 6 - NCMP Obesity Prevalence 5 Years - 2012 to 2017 Gloucestershire and Similar Authorities (CIPFA)](image)

*Figure 3 - Obesity in Year 6 Children 2012-17 Gloucestershire and their Nearest CIPFA Neighbours*
3. District/Borough

There are 6 local authorities within Gloucestershire. Two predominantly urban authorities – Cheltenham and Gloucester – and four predominantly rural authorities – Cotswold, Forest of Dean, Stroud and Tewkesbury.

Figure 4 shows rates of Reception age children recorded as very overweight/obese for each district comparing each recording year with the County rate, South West regional rate and England rate. Each recording year represents a different cohort of Reception age children. Forest of Dean and Gloucester City have experienced obesity rates among reception age children at a consistently higher rate than regional and national rates (with the exception of Forest of Dean in 2016/17). Cheltenham is experiencing year on year increases in the rate of obesity among reception age children.

Figure 4 - Obesity Rates by District/Borough in Reception Age Children by year

Rates of Year 6 children recorded as very overweight/obese have risen each year nationally, decreased each year regionally and have been relatively consistent in the six districts of Gloucestershire. Tewkesbury Borough has experienced the largest fluctuation of obesity rates among year 6 pupils and Gloucester City and Forest of Dean District have consistently had the highest rates in the county (Figure 5).
Figure 5 - Obesity Rates by District/Borough in Year 6 Age Children by year
4. Mapping Childhood Obesity at a Local Level

The following three maps show the same NCMP obesity prevalence information with zoom-ins for Cheltenham and Gloucester.

Gloucestershire areas within the most deprived 20% of England have a black border around them.

The colours on the map are linked to NCMP prevalence of obesity in Year 6 children – red and orange areas have a prevalence greater than the national rate of obesity.

There is a strong correlation of areas in high deprivation and rates of obesity in Gloucester being considerably higher than the national average. Areas with considerably (red areas) high rates of Year 6 obesity in Cheltenham over the last five years neighbour the most deprived neighbourhoods. Five of Cheltenham’s eight most deprived neighbourhoods have recorded higher than national rates of obesity in Year 6 children over the last 5 years.
Prevalence in Gloucestershire
5 Years Pooled Data 2012-2017
Year 6 NCMP Recorded as Very Overweight (Obese)
Prevalence in Gloucester City
5 Years Pooled Data 2012-2017
Year 6 NCDMP Recorded as Very Overweight (Obese)
5. Inequalities in NCMP Obesity in Gloucestershire

In Gloucestershire there are differences in being very overweight in childhood depending on your gender, level of deprivation, ethnicity and rurality in both Reception and Year 6. This is particularly marked by deprivation level and ethnicity. From reception to year 6 the gaps appear to widen with rates becoming markedly higher in more deprived areas – for instance, in reception the gap in obesity rates between most deprived and least deprived in the last 5 years of recording (2012-17) stands at 5.6% in Figure 6, however at Year 6 this gap is 13.9% in Figure 7.

During Reception Year in Gloucestershire, there are statistically significant differences in obese prevalence between urban and rural, most to least deprived as well as significant differences depending upon what ethnicity a pupil is.

These significant differences become more pronounced in Year 6 where the gaps in prevalence from most to least deprived are greater than at Reception age. In Year 6 there are also statistically significant differences between male and female obesity, level of rurality and those of non-white ethnicity when compared to white ethnicity.

![Figure 6 – Inequalities in Obesity in Reception Age children (Summary Chart, 5 years pooled)](image-url)
The following sections explore each theme in further detail.
6. Gender

<table>
<thead>
<tr>
<th>Reception obesity current (2016/17)</th>
<th>Year 6 obesity current (2016/17)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>rates:</strong></td>
<td><strong>rates:</strong></td>
</tr>
<tr>
<td>9.8% of boys</td>
<td>18.7% of boys</td>
</tr>
<tr>
<td>8.6% of girls</td>
<td>15.4% of girls</td>
</tr>
</tbody>
</table>

In both Reception Year and Year 6, boys in Gloucestershire are more likely to be obese than girls over the past 5 years.

The gap between boy/girl obesity is greater in Year 6 and recorded NCMP data shows that this gap is widening.

Nationally, the obesity rates are very similar to Gloucestershire when looking at 5 years worth of national NCMP data for reception age children. National rates for Year 6 obesity in males and females are higher than local Gloucestershire rates but have a similar inequality gap.

![Figure 8 – Obese Inequalities (Gender) in Gloucestershire by year 2012-2017](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E10000013/iid/92026/age/200/sex/4)

[10](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E10000013/iid/92033/age/201/sex/4)

[11](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E10000013/iid/92033/age/201/sex/4)
7. Deprivation

Reception obesity current (2016/17) rates:  
13% of most deprived pupils
6.2% of least deprived pupils

Year 6 obesity current (2016/17) rates:  
25.7% of most deprived pupils
11.2% of least deprived pupils

In both Reception Year and Year 6, children living in the most deprived (decile) areas in Gloucestershire are more likely to be obese than those living in the least deprived areas. The gap between most to least deprived obesity rates is greater in Year 6 and recorded NCMP data shows that this gap is widening from 1 in 5 Year 6 children to 1 in 4 Year 6 children. Further information is available on the maps in section 4 Mapping Childhood Obesity at a Local Level. National data for reception and year 6 children reflects what has been seen locally over the last five years and can be found here:

- Reception Year - 5 years of data combined for England.  
- Year 6 – 5 years of data combined for England.

![Figure 9 – Obese Inequalities (Deprivation) in Gloucestershire by year 2012-17](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data&page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E100000013/iid/92026/age/200/sex/4)

12 https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data&page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E100000013/iid/92026/age/200/sex/4
13 https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data&page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E100000013/iid/92033/age/201/sex/4
8. Rural/Urban

Reception obesity current (2016/17) rates:  
- 10% urban
- 7.2% rural

Year 6 obesity current (2016/17) rates:  
- 18.1% urban
- 14.6% rural

In both Reception Year and Year 6, children living in urban areas are slightly more likely to be obese than those living in rural areas with the inequality gap growing wider during year 6.

National inequality data for 2016/17 has slightly higher rates than Gloucestershire for obesity prevalence for both school year groups in urban and rural areas.\(^{14}\) Rural/Urban inequality data combined for 5 years is currently not available on the Public Health Outcomes Framework website.

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\(^{14}\) [Link to the report](https://files.digital.nhs.uk/publication/jn/nati-chil-meas-prog-eng-2016-2017-rep.pdf) - Page 18
9. Ethnicity

Reception obesity current (2016/17) rates:

- 9.3% Asian
- 14.7% Black
- 8.9% White

Year 6 obesity current (2016/17) rates:

- 25.2% Asian
- 30.8% Black
- 16.4% White

In Year 6, children of Black or Asian ethnicity are more likely to be obese than classmates of White ethnicity. It is in Year 6 where the gaps appear more prevalent (and have grown wider in five years). Over the past 5 years, Reception aged children of Black ethnicity have a higher prevalence of obesity than white children. Obesity among reception aged Asian children have fluctuated above and below the obesity rate of White children and, in 2016/17, shared the same rate of obesity as White children. Trend lines imply that obesity rates in Asian and Black reception children are declining where other ethnicity rates, including in year 6 children, remain relatively constant. National ethnic inequalities over the past 5 years have reflected very similar obesity rates in Asian and Black children and higher rates of obesity amongst White children than Gloucestershire.  

![Figure 11 – Obese Inequalities (Ethnicity) in Gloucestershire by year 2012-17](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E10000013/iid/92033/age/201/sex/4)

[15](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E10000013/iid/92026/age/200/sex/4)

[16](https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/7/gid/8000011/pat/6/par/E12000009/ati/102/are/E10000013/iid/92033/age/201/sex/4)
10. Student Behaviours

Health behaviours have a significant impact on childhood obesity. Gloucestershire’s Online Pupil Survey (OPS) gives insight into health behaviours in the county that may help to explain the trends in childhood obesity.

The Gloucestershire Online Pupil Survey is funded by Gloucestershire County Council and delivered in partnership with local schools, colleges and other local agencies. The survey was initially developed with Gloucestershire County Council and health partners in 2005 and the full survey has been run in 2006, 2008, 2010, 2012, 2014, 2016 and most recently in the spring term of 2018 (results for 2018 not yet available) with schools, colleges and other educational settings across Gloucestershire.

The aim of the survey is to help schools identify areas for improvement and address particular issues raised by their own pupils and to provide evidence to influence future services provided by the County Council and their partners that improve the health and wellbeing of our young people.

The following section focusses on responses from Primary School children in keeping with the NCMP analysis. Having analysed NCMP data by district, the following analysis will also be focussed on local authority district/borough.

The amount of physical activity can significantly impact a person’s weight. 44% of pupils attending Gloucester primary schools are reporting to have 2 hours or less of exercise each week and also having the highest proportion out of the six districts for pupils reporting to have less than one hour exercise each week (13%). This correlates to obesity prevalence in Gloucester having the highest rate of all districts in the county over the last few years.
Figure 12 – Online Pupil Survey, Physical Activity

Figure 13 – Online Pupil Survey, food available outside of school

Figure 13 shows that almost one in five respondents attending Gloucester schools report to either never/not often or only sometimes having access to healthy foods.
Figure 14 shows the proportion of respondents reporting to regularly having sugary/salty food. Primary school children attending Gloucester schools have the highest proportion of those having these particular snacks 5 or more times a day. This correlates with the NCMP data that shows the district/borough with the highest obesity prevalence over the last five years for Year 6 children is Gloucester City. School lunch initiatives that support healthier lunch boxes such as no chocolate bars, sweets or crisps in lunch boxes may help reduce a pupils’ daily intake of snacks.
Figure 15 - Online Pupil Survey, Eating Breakfast

Figure 15 shows the proportion of respondents who have breakfast regularly. While the majority of students start their day with breakfast, there are a minority who don’t or don’t regularly have it. For instance, over one in six respondents who attend schools in Gloucester either never have breakfast or only sometimes have breakfast which can impact child health\textsuperscript{17}, attention and educational development\textsuperscript{18}.

Initiatives such as breakfast clubs can increase numbers of children regularly having breakfast.

\textsuperscript{17} https://www.lshtm.ac.uk/newsevents/news/2018/children-who-skip-breakfast-may-not-be-getting-recommended-nutrients
\textsuperscript{18} https://www.bbc.co.uk/news/education-19951590
11. Conclusions

- Gloucestershire experiences considerable inequalities in obesity in childhood, particularly with regard to ethnicity and deprivation.

- These inequalities in obesity are more marked in Year 6 pupils.

- Gloucester City experiences the highest rates of obesity in the county.

- This report focuses on inequalities in gender, rurality, deprivation and ethnicity each separately but there may be confounding factors which affect obesity prevalence such as maternal smoking, not being breastfed, low activity levels and parental BMI and other daily lifestyle behaviours around food and activity choices.

- Regarding deprivation levels, there is clear evidence to suggest that the inequality gap is widening with obesity rates increasing in the most deprived neighbourhoods and rates decreasing in the least deprived neighbourhoods of Gloucestershire during the last five years.

- Pupils attending Gloucester Primary Schools have the highest district prevalence for: regularly eating snacks (such as sweets and chocolates) every day; not eating breakfast; having the least amount of physical activity each week; not having access to healthy food outside of school.