
Data Quality Statement

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1. Introduction

1.1 The National Child Measurement Programme (NCMP) was introduced in 2005/06 and collects height and weight measurements of children in reception (aged 4–5 years) and year 6 (aged 10–11 years) in state-maintained schools1 in England. The programme now holds ten years of reliable2 data and annually measures over one million children.

1.2 The NCMP provides robust data for the child excess weight indicators in the Public Health Outcomes Framework3, and is a key element of the Government’s approach to tackling child obesity.

1.3 Public Health England (PHE) has responsibility for national oversight of the programme and local authorities (LAs) have a statutory responsibility to deliver it.

1.4 NHS Digital has responsibility for the collection, validation and dissemination of NCMP data. PHE make the data available via an interactive analysis tool and also carry out some more detailed analyses.

1.5 The national report is accompanied by technical appendices that provide details on: data quality (appendix A); data collection and validation (appendix B); how BMI classifications are derived (appendix C); guidance on using the data (appendix D); the methodology used for confidence intervals (appendix E) and significance testing (appendix F).

2. Relevance - coverage and content

2.1 NCMP covers children aged 4–5 years and 10–11 years attending mainstream state-maintained schools in England1.

2.2 For each collection year LAs are assigned a list of mainstream state-maintained schools, within their area, along with associated reception and year 6 headcounts4.

2.3 The proportion of returned schools and measured children are assessed at the end of the collection to check that coverage falls within acceptable thresholds. All LAs passed the check for the proportion of returned schools. Two LAs failed to meet the participation rate target and are mentioned under the “Data quality issues for 2015/16” in this note.

2.4 Coverage against each data item is also assessed and more details are provided in the following section.

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1 Local authorities are mandated to collect data from mainstream state-maintained schools. Collection of data from special schools (schools for pupils with special educational needs and pupil referral units) and independent schools is encouraged but data collected from these schools is excluded from the national report.

2 2006/07 is the first year that the data are considered to be robust due to the low participation in 2005/06.

3 2.06ii - Excess weight in 4-5 and 10-11 year olds.

4 Based on Department for Education school census data.
Information in the report is presented by the following breakdowns: age; sex; geography (region and LA); deprivation; rurality; ONS area classification and ethnicity.

3. Accuracy and reliability

3.1 The accuracy and reliability of the dataset underpinning the analyses in the report is ensured by a rigorous validation procedure. Further details are provided in “Related Information” here:


3.2 As records are submitted, the NCMP system checks that all mandatory data items have been provided and data validation rules have been met.

- Records with missing data items are rejected.
- Invalid data items (e.g. incorrect ethnicity codes) are rejected.
- Unexpected data items (e.g. “extreme” heights) generate warning flags that require LA confirmation.

3.3 The NCMP system provides LAs with real-time data quality indicators throughout the collection period. This enables them to monitor the quality of their data during the collection period so they can take action if necessary.

3.4 The LA’s NCMP Lead is required to sign off these indicators as being within acceptable limits as part of finalising their data at the end of the collection. The data quality thresholds are provided in the validation document mentioned above.

3.5 The performance of LAs against these data quality measures is published in a data quality table (Online table 8) along with the national report. This table serves to highlight publicly any LAs which have poor quality data in relation to their peers to provide an incentive for LAs to take active steps to improve data quality.

3.6 Table A1, in appendix A of the publication, shows the key data quality measures at national level since the first year of robust NCMP data was collected in 2006/07. These data quality measures include indicators around coverage, completeness and accuracy of data entry.

3.7 Since 2006/07, there have been considerable improvements in data quality. In 2015/16 for example, 91 per cent of records included a valid ethnic code compared to 32 per cent in 2006/07.

3.8 After the collection deadline, NHS Digital carries out further validation, e.g. comparing data across LAs and over time. NHS Digital contacted a number of LAs to query unexpected findings and, where necessary, requested that data were corrected.

3.9 The participation rate can particularly affect the accuracy of estimates derived from the data. For example, if the participation
rate is very low in a local authority then the prevalence estimates for the BMI categories should be treated with caution as those children measured may not be representative of all children in the LA. The required participation rate is 85 per cent. Two LAs failed to meet this target and they are mentioned under the “Data quality issues for 2015/16” in this document.

3.10 In recognition of the effect of natural year to year variation, confidence intervals are included around the prevalence estimates in the online report tables and these 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 natural variation.

3.11 As the sample sizes and participation rates for NCMP are large (1,169,941 records and 95 per cent participation in 2015/16) the 95 per cent 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 per cent significance level. Where two figures are described as being different (e.g. higher/lower or increase/decrease etc.) the result of the test has determined a statistically significant difference. Further details are provided in appendix F of the publication.

4. **Timeliness and punctuality**

4.1 The NCMP national report is published annually and has never missed a scheduled publication date.

4.2 The production time for the report has been reduced each year due to increased efficiency in production processes and fewer data quality issues as LA understanding of data requirements improves.

4.3 This report is being published on 3rd November 2016 and reports on the 2015/16 school year.

5. **Accessibility and clarity**


5.2 The report is accompanied by technical appendices that provide details on methodology and data tables in Excel format.

5.3 In order to meet the Government’s transparency agenda and to facilitate re-use of the data, the data is also been made available as a record level file. However, in order to comply with the NHS Anonymisation Standard and mitigate against an individual being
identified, certain fields have been removed and others overwritten with blanks or altered. Further information on how this has been carried out is given within the guidance document which accompanies the record level file. This document contains important information on how the file can and cannot be used in the form of a Q&A section. The 2015/16 record level file will be published in CSV format soon after this report is published.

6. Coherence and comparability

6.1 The report uses the population monitoring thresholds\(^5\) of the British 1990 Growth Reference (UK90)\(^6\) to calculate the prevalence of the BMI classifications. This is a common approach used in England to classify children into different BMI categories.

6.2 Comparisons of overweight and obesity prevalence figures between the NCMP and other sources can only be made where the other source also uses the population monitoring thresholds of UK90.

6.3 The Health Survey for England (HSE) also contains prevalence of different BMI categories. HSE covers all children and is not restricted to those in reception or year 6 but as it is based on a sample the confidence intervals around the estimates are much wider than those presented in this report.


6.5 The technical appendices contain links to data published relating to children in Wales, Scotland and Northern Ireland.

7. Trade-offs between output quality components

7.1 A small number of children move schools during the school year and therefore can be measured more than once depending on when the measurements take place in the schools they have attended. This is a necessary trade-off since LAs have a statutory responsibility to measure children in mainstream state-maintained schools regardless of whether these children have been measured previously or not.

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\(^5\) 85th and 95th centiles.

8. Assessment of user needs and perceptions

8.1 This report was part of a consultation on all NHS Digital publications in 2016:

8.2 User feedback is also collected via NHS digital online feedback forms linked to the publication page.

8.3 Ad hoc requests for NCMP data inform the content of published tables during the design and development stage of the publication each year.

9. Performance cost and burden

9.1 The NCMP operates on an “opt out” basis. Local authorities send letters to parents of children eligible\(^7\) to participate in the NCMP. This letter sets out the purposes for which the data will be held and used and provides an opportunity for the parent to say they do not want their child to be measured. Children not opted out by their parents or by themselves are then measured and their measurements and other details are entered into the NCMP collection system.

9.2 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. Public Health England provides guidance to local authorities on how to accurately measure height and weight\(^7\).

9.3 Data are provided annually by local authorities and published by NHS Digital. Most local authorities also choose to feedback measurements to parents by generating a letter, using the NCMP collection system, and are encouraged to do so within six weeks of the measurements being taken.

9.4 The cost of providing the data centrally was last measured in 2012 and was estimated to be around £131,000. This was at a time when the data was provided by Primary Care Trusts (PCTs) rather than LAs. However, it should be a reasonable approximation of the current cost to LAs as the collections has changed little since then. The cost for NHS Digital to collect, analyse and disseminate the data was £177,000 in 2015/16. This includes hosting, maintaining and enhancing the NCMP IT collection system.

10. Confidentiality, transparency and security

10.1 This publication is subject to an NHS Digital risk assessment prior to issue which is approved by the NHS Digital Statistical Head of

\(^7\) See:
Profession. Information is disseminated at a high level of aggregation (Lower tier LA level and above).

10.2 For the non-identifiable version of the dataset, some of the data items collected have been removed and others have been altered to compliance with the NHS Anonymisation Standard. This is approved by the NHS Digital Disclosure Panel which is chaired by the NHS Digital Statistical Head of Profession and contains representation from Information Governance specialists and experienced statisticians within NHS Digital.

10.3 For the purposes of maintaining confidentiality, City of London LA has been combined with Hackney LA, and Isles of Scilly LA has been combined with Cornwall LA.

10.4 In addition, primary suppression has been applied to the LA level tables by not showing prevalence rates based on less than or equal to five children. This also leads to secondary suppression by not showing the prevalence rate for another BMI category within that LA and not showing the corresponding prevalence rates for another LA within that region. However this latter stage is not necessary if a prevalence rate for another LA within the region has already undergone primary suppression.

11. Data quality issues for 2015/16

11.1 All LAs finalised their data thereby signing off their data quality indicators as being within acceptable limits (as outlined in the validation document linked to in the Accuracy section). Two LAs failed to meet the collection deadline and finalised their data late: Lancashire County Council and London Borough of Havering.

11.2 LAs failing to meet the required data quality thresholds are shaded red in Online table 8 and more detail is provided below. All these issues need to be considered when interpreting NCMP data, particularly at a local level.

- Two LAs failed to meet the 85 per cent target for participation rate. If the missing pupils are not representative of all pupils then this will affect their prevalence estimates for the different BMI categories. The following explanations for missing data were provided:
  
  Portsmouth City Council (84.7 per cent in year 6) – Portsmouth have explained that several factors had a negative influence of the uptake percentage 2015/16. Staff were required to familiarise themselves with a new internal data collection system. The small team were working at a reduced capacity over the year due to staff sickness, maternity leave, high staff turnover and difficulties with staff recruitment. They have put changes in place to increase the quality of our data collection for 2016/17, a revised recruitment plan is in place and they hope to improve participation in state funded special schools.
St Helen’s Borough Council (80.4 per cent in year 6) were unable to submit around 10 per cent of their Year 6 records due to issues experienced by the organisation contracted to complete the health checks on their behalf.

- Two LAs exceeded 5 per cent of blank child postcodes: London Borough of Merton Council (7.4 per cent) and Wolverhampton City Council (5.8 per cent).

- Six LAs exceeded 30 per cent whole number heights. Of these, three LAs exceeded 50 per cent: Gloucestershire County Council (100 per cent), South Gloucestershire Council (100 per cent) and London Borough of Richmond upon Thames Council (51 per cent). No LAs exceeded 30 per cent for weights.

- 18 LAs exceeded 25 per cent of blank ethnicities. Of these, ten LAs did not provide any ethnicity data (Bracknell Forest Borough Council, Liverpool City Council, London Borough Of Havering, Sefton Council, Slough Borough Council, Solihull Metropolitan Borough Council, Sunderland City Council, West Berkshire District Council, Wigan Metropolitan Borough Council, Wokingham Borough Council). The remaining LAs who failed this validation check can be seen shaded red in Online table 8 (column N).

- 54 LAs exceeded 25 per cent of blank NHS numbers. Of these 42 did not provide any NHS numbers. These can be seen shaded red in Online table 8 (column P). Failing to provide NHS number will make it harder to match year 6 and reception year measurements for the individual child.

11.3 Additional post-deadline validations carried out by NHS Digital revealed the following issues which users should be aware of when using this report.

11.4 Checks for schools with a high proportion of extreme measurements were carried out since clusters of extreme measurements can indicate measurement errors. For example, it can reveal that measuring equipment has been incorrectly calibrated. This check identified five schools across four LAs with a proportion of extreme measurements exceeding 10 per cent. All of the affected records were either deleted, corrected or confirmed as correct - see below:

- Westminster City Council had two schools with a high proportion of extreme heights. The LA investigation established that the 38 records with extreme heights were incorrect and so they were deleted. Corrected data was unavailable.

- Bury Metropolitan Borough Council had one school with a high proportion of extreme heights although this only affected

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* Assuming that height is distributed equally by mm, 10 per cent of entered heights would be expected to be whole numbers (e.g. 145.0). High proportions of whole numbers can indicate that measurements have not been taken to the required level of accuracy (1 decimal place).
four records as it was a small school. The LA investigation established that the four records with extreme heights were incorrect and these were corrected.

- London Borough of Richmond upon Thames Council and Bolton Metropolitan Borough Council each had one school with a high proportion of extreme BMIs but confirmed that their data was correct.

11.5 Checks for schools with a high number of extreme pupil postcode to school postcode distance were carried out since this could indicate an error in either postcode. This identified six schools across six LAs with three or more pupil postcode to school postcode distances exceeding 60km:

- Kirklees Council confirmed that the records in question had incorrect child postcodes and provided corrections.

- Southampton City Council explained that the children had moved away from the LA and their new addresses had been input into the NCMP system for parental feedback purposes.

- Lincolnshire County Council responded with thanks for the information but did not request to make any corrections.

- Three LAs did not respond: Surrey County Council, London Borough of Ealing, West Sussex County Council.