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Public Health Wales

Public Health Wales

Child Measurement Programme

Report 2012/13

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Foreword

Overweight and obesity is one of the main risks for shortened life expectancy in the adult population of Wales. Obesity is also a threat to child health. For example more children are being diagnosed at a younger age with type 2 diabetes due to obesity. As well as physical consequences it can cause significant emotional distress in children who are affected. The good news is that the majority of children measured in the Child Measurement Programme for Wales were of a healthy weight. And although it is too early in the life of the programme to identify any persistent trends, there has been a small fall in the prevalence of overweight and obesity in reception year children between 2011/12 and 2012/13.

While individual interventions have a part to play in supporting children to achieve a healthy weight, it is the multiple actions taken at a societal level that have the most impact. There has already been investment in Wales in measures designed to address the obesity challenge. These include the Active Travel Bill and Healthy Eating in Schools Measure as well as programmes such as Flying Start and Change4Life. The Child Measurement Programme should, in time, be able to identify if these measures are halting the rise in child obesity.

The Child Measurement Programme for Wales is an annual surveillance programme. As well as prevalence of overweight and obesity, the programme also identifies a small number of children who are underweight or not as tall as expected. Over time, as more information is gathered, it will reveal a picture of the trends in child growth and inform plans to address the issue.

We are very grateful to all the families in Wales who have allowed their children to be part of the programme and to the staff in the health boards who have supported the programme.

Professor Peter Bradley

Executive Director of Public Health Development

Public Health Wales

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Abbreviations

BME	Black and Minority Ethnic
BMI	Body Mass Index
CDC	Center for Disease Control (USA)
CI	Confidence interval
CMP	Child Measurement Programme for Wales
COSI	Childhood Obesity Surveillance Initiative
IOTF	International Obesity Task Force
LSOA	Lower super output area
NCCHD	National Community Child Health Database
NCMP	National Child Measurement Programme England
NHS	National Health Service
NICE	National Institute of Health and Clinical Excellence
NWIS	NHS Wales Information Service
ONS	Office for National Statistics
UK 90	British 1990 Growth Reference (See section 5.3)
WHO	World Health Organization
WIMD	Welsh Index of Multiple Deprivation

Summary

1

This is the second report of the Child Measurement Programme for Wales. This report contains the findings of the programme of child measurements carried out during the academic year 2012/13 with children who were in the reception year (age four to five) age-group.

Key messages

- 29,238 (84.3%) of the 34,679 children eligible for inclusion in the programme had measurements taken in line with the Child Measurement Programme standards and guidance, and analysis of their measurements have therefore been included in this report. 51% of the children were boys and 49% were girls.
- Nearly three quarters of the children measured (73.2%) had a body mass index (BMI) classified as being a healthy weight.
- The prevalence of those overweight or obese in Wales in reception year (26%) was significantly higher than that for England (22%) and also significantly higher than the English region with the highest prevalence - the north-east, at 24%.
- Girls had a higher prevalence of healthy weight (73.9%) than boys (72.5%). However obesity prevalence in girls (11.4%) and boys (11.3%) was similar.
- 11.3% (3,316) of children measured were obese. Prevalence of obesity was highest in Merthyr Tydfil (16.4%), and more than double that of the local authority with the lowest prevalence – Monmouthshire (7.5%)
- There is a strong relationship between levels of obesity and deprivation – 29.4% of children living in the most deprived areas of Wales were overweight or obese, compared to 21.4% in the least deprived areas. For obesity alone, 13.6% of children in the most deprived areas were obese, compared to 7.8% in the least deprived areas.
- While prevalence of obesity appears to have fallen from 12.5% in 2011/12 to 11.3% in 2012/13, these figures should be treated with caution until more information for future years becomes available. What is of concern is that if the information reflects a real fall in prevalence then the fall appears to be greater in the least deprived areas of Wales (from 9.4% to 7.8%) than the fall in the more deprived areas (from 14.3% to 13.6%), and the absolute gap between obesity prevalence between the most and least deprived areas has therefore increased from 4.9% in 2011/12 to 5.8% in 2012/13.
- This year is the first year that the Child Measurement Programme has looked at the ethnicity of children in relation to their BMI. The ethnicity of nearly 90% of children was available. The highest prevalence of overweight and obesity in reception year in Wales is seen in children of black origin (34.4%), and the lowest in children of Asian origin (23%). However the number of children with an ethnic origin other than white who were measured was comparatively small at 1,768 or 6% of the total number of children in the programme. 10% of the children measured did not have their ethnicity recorded or it was recorded as "not known".

Introduction

2

This is the second report of the Child Measurement Programme for Wales and the first report carried out in line with standards and guidance agreed in 2012. It is also the first year that the data is published as official statistics. The report contains the results of the Child Measurement Programme which was carried out with children who were in the reception year age group (age four to five) during the academic year 2012 to 2013.

The first report, published in 2013, was described as a transitional report as not all the necessary standards, guidance, training or dedicated data collection systems were in place at the start of that school year. Information in this report is presented at a national, local authority and health board level. It is not possible to present information at a lower level (for example by school or school cluster) without running the risk of identifying individual children. Where the number of children in any category is less than five, the figures have not been included in the reference tables in Appendix 3. For prevalence of low height and underweight it has therefore been possible in most instances to present the information only at a national or health board level.

The report describes prevalence of:

- Healthy weight
- Overweight and obese
- Overweight but not obese
- Obese
- Underweight

in children born between 1st September 2007 and 31st August 2008, and both resident and attending school in Wales. The categories are based on the body mass index (BMI) of the children taking into account their age and gender at the time they were measured. Information is also given on low height. 95% confidence intervals (CI) have been calculated for the results and where comparisons are made and have been described as 'significant', this means that the 95% confidence limits for two related prevalence rates don't overlap. An explanation of confidence intervals as well as other explanations about methods used is given in Section 5 of this report.

The Child Measurement Programme is a surveillance programme. Results for an individual child are not routinely supplied to parents unless they request them. However staff involved in taking the measurements of children are expected and encouraged to take appropriate action should they identify concerns. The rationale for introducing a surveillance programme on such a large scale is to provide robust information on child growth in Wales, and on childhood obesity, which is an increasing problem across the world. Children who are underweight or of small height will also be identified through the programme, and action taken to address these issues.

Children who are obese are more likely to become obese adults and this likelihood increases with age, the degree of obesity and whether they have obese parents[1]. Childhood obesity has adverse consequences for those children affected while they are still in childhood but also later on in life. The consequences may be directly related to their health but can also impact on their psychological, social and emotional development. As food related behaviour patterns are established early in a child's life, often before the age of five, it is important to identify and address issues with parents and carers when children are still young.

Prevalence of childhood obesity is an ongoing concern in Wales which has one of the highest prevalence rates in Europe[2]. As well as increased likelihood of adult obesity and the associated higher risk of premature mortality, increased morbidity and disability in adulthood, children who are obese are reportedly being diagnosed at a much younger age with obesity related diseases such as type 2 diabetes. Adults who are obese are at greater risk of type 2 diabetes, hypertension, liver disease, heart disease and stroke, cancer, respiratory disease, osteoarthritis and female infertility[3]. The costs both to the NHS and to society of tackling obesity are considerable – a study commissioned by the Welsh Assembly in 2011 put the costs of obesity to the Welsh NHS at £73 million[4].

About the Programme 3

3.1 Aims

The Child Measurement Programme was established as a surveillance programme, aimed at giving an accurate picture of the growth of children in Wales. The results may be used for surveillance, planning of health and preventative services, research, monitoring or evaluation purposes.

The programme is not a screening programme, however health professionals carrying out measurements who identify concerns about the growth of an individual child would be expected to respond to those concerns in line with locally agreed protocols and pathways. Results for an individual child are not routinely given to parents unless they request them, or the local health board decides to supply them.

In this second full year of the Child Measurement Programme, measurements have been carried out in line with the Standards[5] and Guidelines[6] which were agreed by the Child Measurement Programme Steering Group and Board in 2012. The Standards and Guidelines are designed to facilitate a standardised way that children are measured so that results are robust and comparable across Wales and over time.

3.2 Child Measurement Programme Standards and Guidelines

The Child Measurement Programme Standards and Guidelines are available on the internet here in English: http://www.wales.nhs.uk/sitesplus/888/page/67795

And in Welsh: http://www.wales.nhs.uk/sitesplus/888/tudalen/67941

The documents set out information for local health teams about how measurements should be carried out, and how the information about the measurements should be recorded. The information includes guidance on the correct weighing scales and stadiometers (equipment to measure height accurately), and use and maintenance of the equipment. There is also information about calculation and interpretation of BMI measures, staff training and local audit. This information is also available to staff and parents in the form of videos in both Welsh and English on the Public Health Wales internet site. There is a dedicated information collection module on the Community Child Health System.

Local health board teams are responsible for those elements of the programme that are delivered locally such as the weighing and measuring of children, entering information onto the computer system and provision of feedback to parents. They are also responsible for ensuring parents are given information about the programme and the opportunity to opt their children out of the programme. However the Child Measurement Programme Office requests assurance annually that local child health teams are adhering to the standards and guidance agreed.

3.3 History of the programme in Wales

The Child Measurement Programme in Wales was started in 2011/12 following publication of a feasibility study in 2009[7].

The programme includes all children in reception year whose parents have not opted them out. The first report of the programme[8] was published in July 2013, and was described as a "transitional year" to reflect that not all the standards and guidance were in place at the time the measurements began. These standards and guidance are now in place and the programme has been carried out in line with them.

The programme was established following Directions[9] issued by the then Minister for Health and Social Services. These Directions came into force in August 2011. The programme is governed by the Welsh Government's Child Measurement Programme (Wales) Regulations[10], and it is coordinated by Public Health Wales, supported by the NHS Wales Information Service (NWIS). The programme is delivered by the seven health boards in Wales, with Public Health Wales having responsibility for oversight, data-analysis and reporting.

To support the establishment of the Child Measurement Programme a Steering Group and Board were established in 2011. These two groups contained representation from health boards, Public Health Wales, education, Welsh Government, voluntary sector, and NHS Wales Informatics Service. Once the programme was in place and the first report published in July 2013 it was decided that the programme should be governed by one group and a new Child Measurement Advisory Group is being put in place to provide oversight of the programme.

3.4 Potential extension of the programme

The programme is currently carried out with children in the reception year age-group (age four to five). A pilot has been carried out measuring children in Year 4 in the Cwm Taf University Health Board, however no decision has been made yet about extending the programme to include Year 4 nationally.

Extending the programme to Year 4 rather than any other year group would allow comparisons to be drawn between Wales and other European countries who participate in the World Health Organisation's (WHO) European Childhood Obesity Surveillance Initiative (COSI). Choosing this age group will also mitigate against results being affected by children whose growth is impacted by puberty. Extending the programme to a second cohort of children will also allow for longitudinal comparisons, i.e. the same children will be measured at a four year interval.

In 2015 it is anticipated that the programme will also include some analysis of patterns of child growth by ONS area classification, i.e. examining whether there are different patterns of growth between children living in rural or urban areas.

3.5 Factors affecting the Child Measurement Programme in 2012/13

There are three main factors which may have affected the numbers of measurements included in the programme this year. These are the effect on health services of a measles outbreak in Wales in Spring 2013; the introduction of a new module for recording measurements for the programme on the National Community Child Health Database (CCH2000); and a specific issue local to measurements in Powys. Both of the first two factors are thought to have impacted upon the ability of staff in all the health boards to deliver elements of the programme in line with the standards and guidance and the participation rate appears to have fallen from 88.4% in 2011/12 to 84.3% this year. For a fuller explanation please see section 4.1. The actual number of children in both years who were measured is broadly similar.

It is difficult to establish whether a fall in participation rates significantly impacts on obesity prevalence figures. However work done in the National Child Measurement Programme for England[11] over a number of years suggests that while a change in participation rates can lead to a small underestimation of obesity prevalence for children in Year 6 in England (suggesting children with a higher BMI may be more likely to be opted out in that year group), it had a negligible impact upon the reception year figures in the English programme.

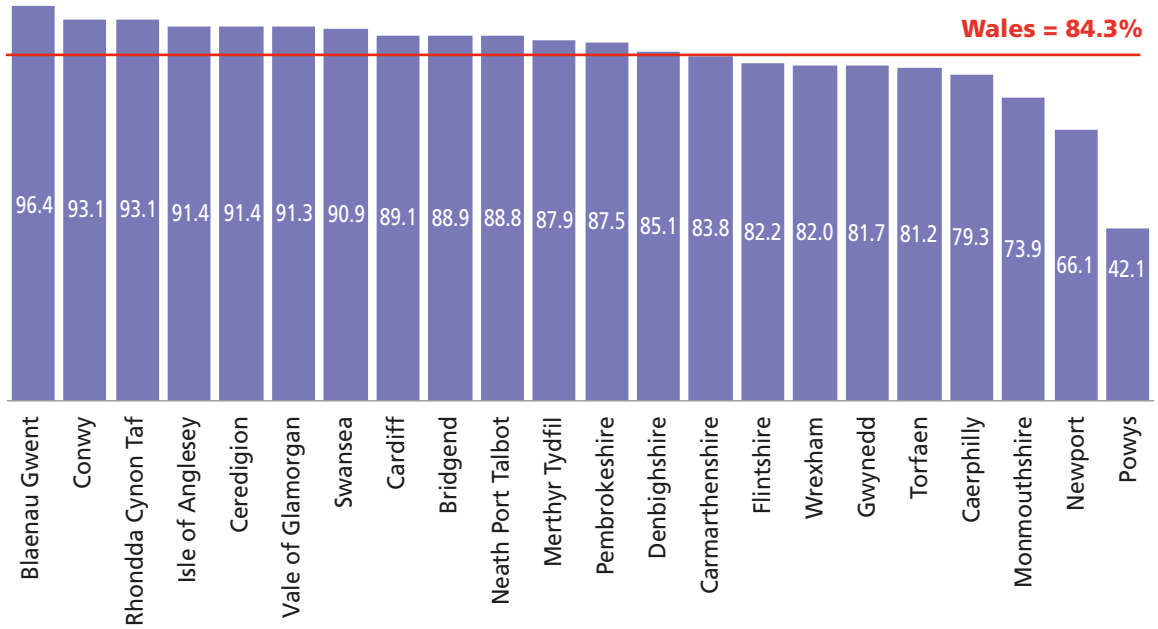
Results

4.1 Participation

There were 34,679 children in Wales deemed eligible for inclusion in the Child Measurement Programme in 2012/13 – that is that they were born between 1st September 2007 and 31st August 2008, and they were both resident and attending school in Wales. Of those children, 29,238 (84.3%) had not opted out and had had valid measurements taken which have been included in this analysis.

Parents/carers are given the opportunity to opt their children out of the Child Measurement Programme and in 2012/13 a total of 286 children were opted out, and accurate measurements could not be carried out on a further 17 children. In 2011/12 497 children were opted out of the programme. There are several possible reasons why accurate measurements may not be obtained, including children being unable to stand unaided on the measuring equipment or children wearing plaster casts.

Figure 1 Proportion of children aged 4 to 5, Wales and local authorities, Child Measurement Programme for Wales 2012/2013



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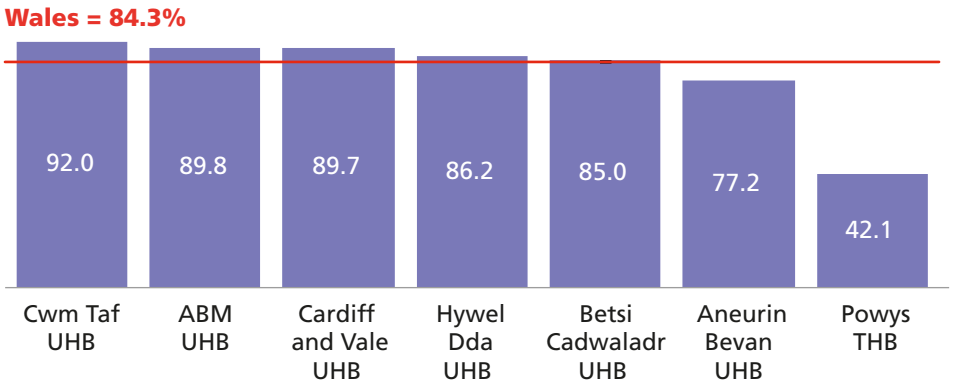
In the transition year of 2011/12 it was reported that there were 33,272 eligible children of whom 29,409 (88.4%) participated. So while a similar number of measurements are included for each of the years, the proportion of eligible children appears to be slightly lower this year at 84.3%. However as 2011/12 was a transition year and the first full year of the programme, there may have been some issues with calculating a rigorous denominator population for that year. The absence of the Child Measurement Programme module in 2011/12 on the National Community Child Health Database, combined with the lack of a national standard for school codes used within the database complicated the task of ensuring that all those (and only those) children in Welsh schools who were also resident in Wales were included.

A schools census is carried out every year in Wales. In January 2013, the schools census recorded that there were 35,756 children in reception year in Wales. However this figure includes children who are resident in England but attending school in Wales, and these children's measurements would not be included in the Child Measurement Programme. Both the timing of the school census and the inclusion in the school census of children resident in England could, in part, also explain the difference between the two figures.

There were problems in some geographical areas with participation. As is shown in Figure 1 there was a specific issue with participation in Powys. The school health team had carried out measurements with Year 1 (rather than reception year) children in the transition year. These were included last year because 2011/12 was a transition year. By 2012/13 the Standards and Guidance had been approved and information about them disseminated. These call for all measurements to be carried out in the correct school year, so the measurements obtained from Year 1 children in September 2013 in Powys are not included in this report. However the school health team in Powys will be provided with a short report detailing their full results including the Year 1 measurements. Work has been undertaken by the school health team in Powys to ensure that all measurements in future years will be taken with children in reception year.

Figure 2 Proportion of children aged 4 to 5, Wales and health boards, Child Measurement Programme for Wales 2012/2013



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There was an issue with the introduction of a specific Child Measurement Programme module on the Community Child Health Database – it became apparent that not all the staff in the health boards responsible for entering measurements data were entering it on the Child Measurement Programme module. This has now been addressed and all staff reminded to use the correct module.

Staff from all the health boards reported that they had faced challenges meeting the requirements of the programme because of the increased workload caused by a measles outbreak. This outbreak started in April in Swansea but there were also smaller outbreaks elsewhere in Wales including in north Wales. The impact of the measles outbreak meant that:

- More children than usual were absent from schools on the days that measurements were being carried out.
- School health teams were engaged in carrying out "catch up" immunisation programmes, ensuring all children were protected against measles, resulting in lack of time to make repeat visits to schools to carry out the child measurements.
- The staff working on child health records were involved in ensuring that immunisation data was correct and running reports to identify unimmunised children. This meant that they did not have enough time to run reports needed to identify gaps in the child measurement programme.

As can be seen from Figure 3 there is no discernible pattern in participation according to deprivation. About the same proportion (84.5%) of children from the most deprived areas in Wales participated in the programme as the Welsh average (84.3%).

4.2 Healthy weight

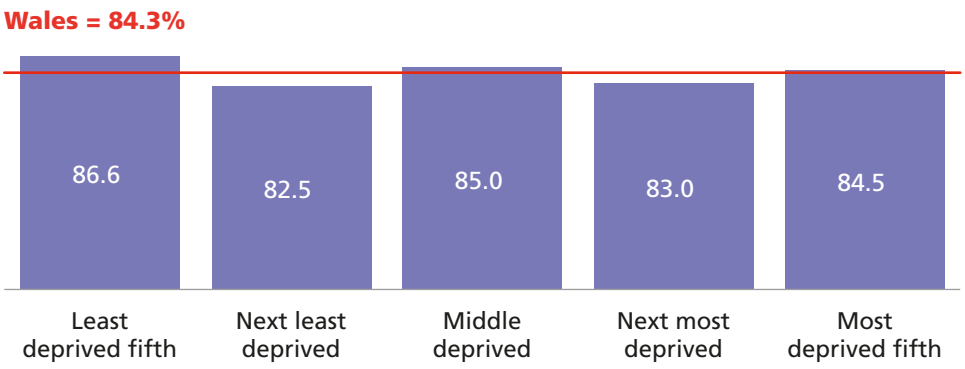
A full explanation of how children are classified according to their BMI is given in section 5. Briefly, children are classified as below:

- Underweight: BMI less than but not including the second centile
- Healthy weight: BMI second centile up to but not including the 85th centile
- Overweight but not obese: BMI 85th centile up to and not including 95th centile
- Obese: 95th centile and above

Slightly different thresholds are used by clinicians and more information about this is given in section 5 – 'Classifying a child's BMI'

The majority of children (73.2%) attending reception year and living in Wales are of a healthy weight. However prevalence of healthy weight varies across the country.

Figure 3 Proportion of children aged 4 to 5, Welsh Index of Multiple Deprivation participating in Child Measurement Programme for Wales 2012/2013



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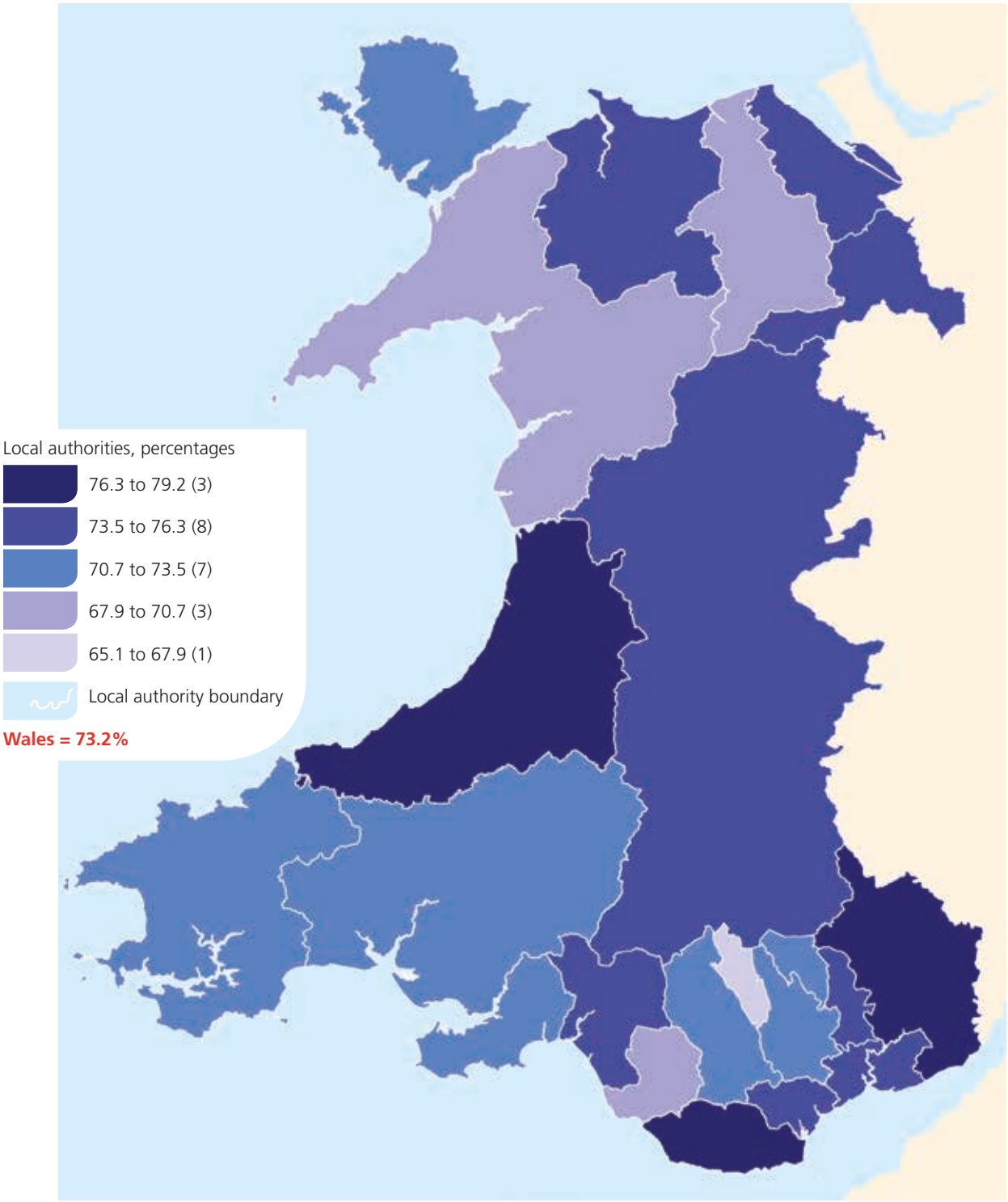
At a sub-national level, information on children of healthy weight is combined with information about children who are underweight when exact numbers are displayed. This is to avoid identification of individual children who are underweight as their numbers are very small at health board or local authority level. However it is possible to give information about prevalence (rather than actual numbers) and display the information on a map, as in Figure 4.

Figure 4[†] Proportion of children aged 4 to 5 years who are healthy weight, 2012/13



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[†] Exact values are used to determine the ranges, and hence membership, of groups within maps. However, in the legend those ranges are shown to one decimal place only. Therefore, whilst the top of one range appears to overlap with the bottom of the following range within the legend, each exact value could only fall within a single exact range and group

Figure 5 Proportion of children aged 4 to 5 years, who are a healthy weight or underweight, Child Measurement Programme, Wales and local authorities, 2012/13

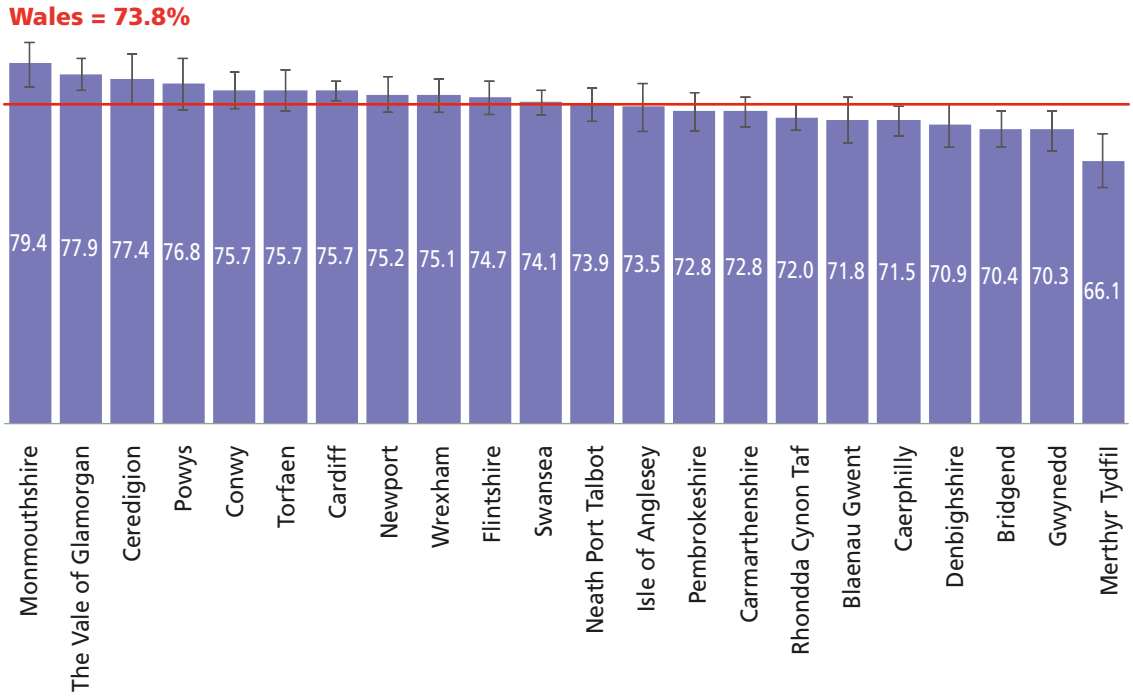

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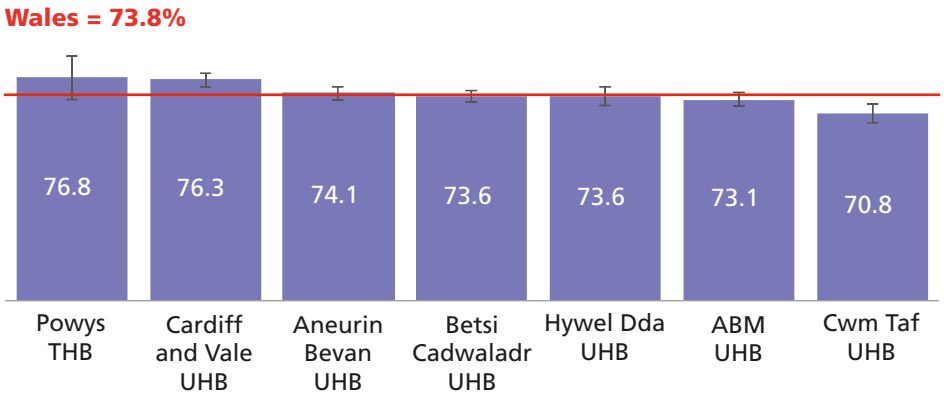
Figure 6 Proportion of children aged 4 to 5 years who are a healthy weight or underweight, Wales and health boards, Child Measurement Programme for Wales, 2012/13



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Figures 5 and 6 show the information at local authority and health board level for children with a BMI classified as healthy weight or underweight.

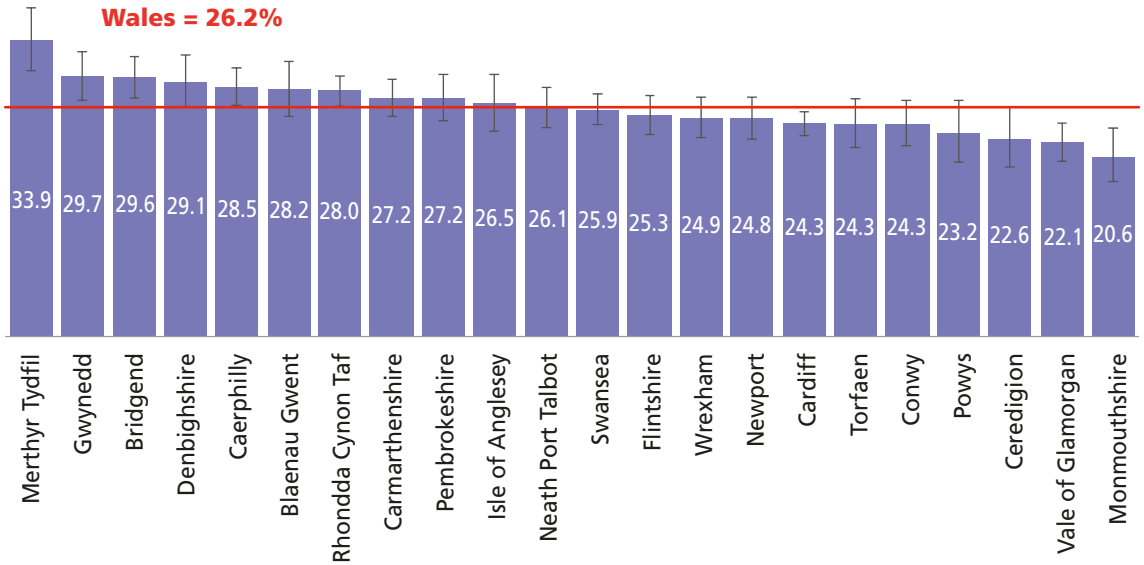
As identified in section 4.1 participation or reception year children in Powys was lower than in other areas (42% of eligible children measured). The prevalence of children of healthy weight or underweight in Powys at health board level appears high in Figure 6, however this percentage is based on a small number of measurements and the confidence interval is wide. The prevalence in Powys could therefore be the same, similar or lower than that in any of the other health boards except Cwm Taf University Health Board.

4.3 Overweight and obesity in children

The majority of children (73.2%) in Wales who were measured are deemed to be of a healthy weight. However 26.2% of children measured in 2012/13 in Wales were either overweight or obese. This proportion varies by local authority (Figure 7), health board (Figure 8) and deprivations levels for the area where the children live (Figure 9). In more affluent local authorities the prevalence was generally lower. Monmouth had the lowest prevalence at 20.6%, however it reached almost 34% in the more deprived area of Merthyr Tydfil.

The cohorts of children measured in both Monmouthshire and Merthyr Tydfil were quite small, 652 children in each local authority, compared with 3,737 children in Cardiff, the area with the largest number of children participating. But even with a caveat around smaller numbers as can be seen from Figure 7, the confidence interval suggests that prevalence of overweight and obesity in children in Merthyr Tydfil was well above, and in Monmouthshire well below, the Welsh average. This still means that every area in Wales is experiencing appreciable levels of childhood overweight or obesity, with an even greater burden in more deprived areas The information in Figure 7 is also available in a map in Appendix 5.

Figure 7 Proportion of children aged 4 to 5 years who are overweight or obese, Wales and local authorities, Child Measurement Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

Figure 8 Proportion of children aged 4 to 5 years who are overweight or obese, Wales and health boards, Child Measurement Programme for Wales, 2012/13

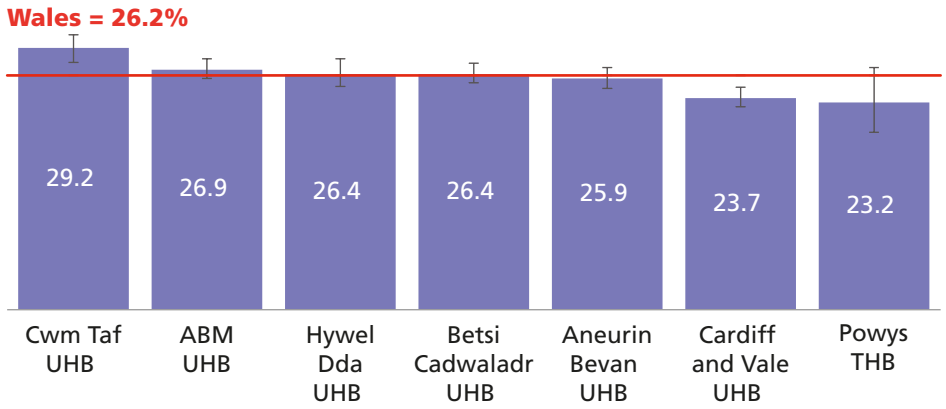


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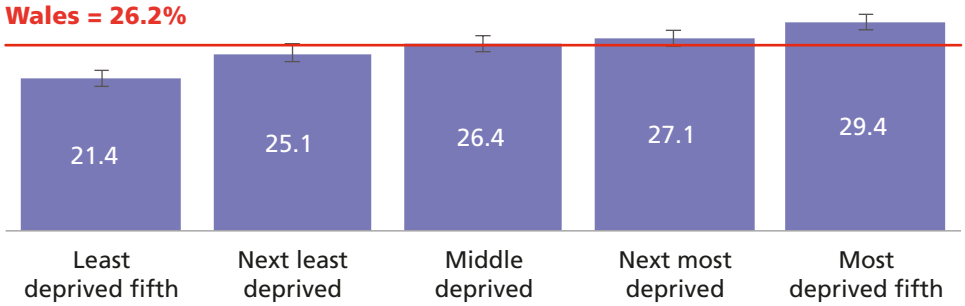
Figure 9 Proportion of children aged 4 to 5 years who are overweight or obese, Welsh Index of Multiple Deprivation quintiles, Child Measurement Programme for Wales, 2012/13



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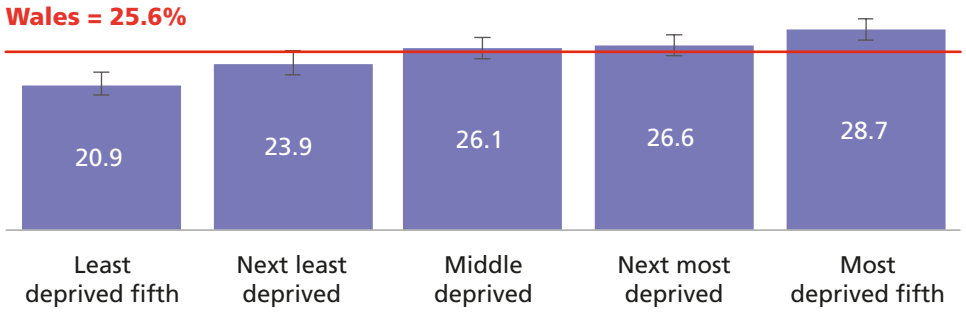
4.3.1 Overweight and obese children by deprivation level

The prevalence of overweight and obesity in children in the reception year age group is given by health board and local authority of residence in the previous section. Both obesity prevalence and the prevalence of overweight are known to be higher in adults and children who live in more deprived areas, and figures 9, 10 and 11 give prevalence of 'overweight or obese' by deprivation quintile for all children and for girls and boys in Wales.

Deprivation is assessed using the Welsh Index of Multiple Deprivation (WIMD). The WIMD is the official measure of relative deprivation for small areas in Wales. This index is constructed by using a range of indicators to assign a deprivation rank to each of the 1,896 lower super output areas (LSOA) in Wales. An LSOA is a geographical area which may vary in geographical size but each LSOA contains about 1500 people registered as living in that area. In 2011 only Ceredigion and Monmouthshire had no LSOAs in the most deprived 10% of LSOAs in Wales.

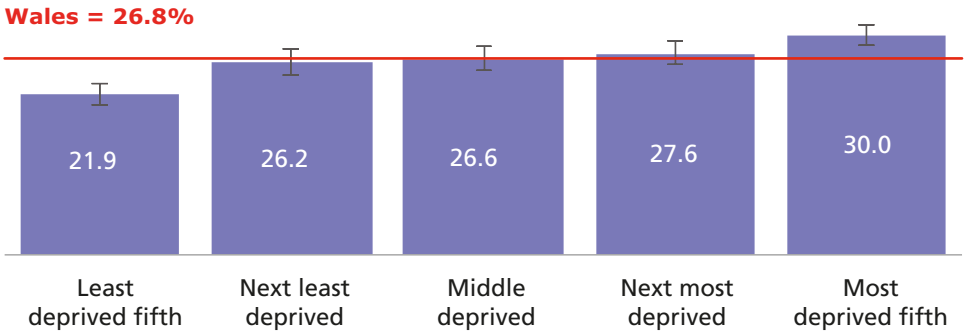
Meanwhile the most deprived local authority was Merthyr Tydfil, with a quarter of its LSOAs in the most deprived 10% in Wales, followed by Blaenau Gwent (23.4%) and Rhondda Cynon Taff (17.8%)[12]. However there are pockets of deprivation across Wales, with the most deprived LSOA being in Rhyl west.

Figure 10 Proportion of girls aged 4 to 5 years who are overweight or obese, Welsh Index of Multiple Deprivation quintiles, Child Measurement Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

Figure 11 Proportion of boys aged 4 to 5 years who are overweight or obese, Welsh Index of Multiple Deprivation quintiles, Child Measurement Programme for Wales, 2012/13



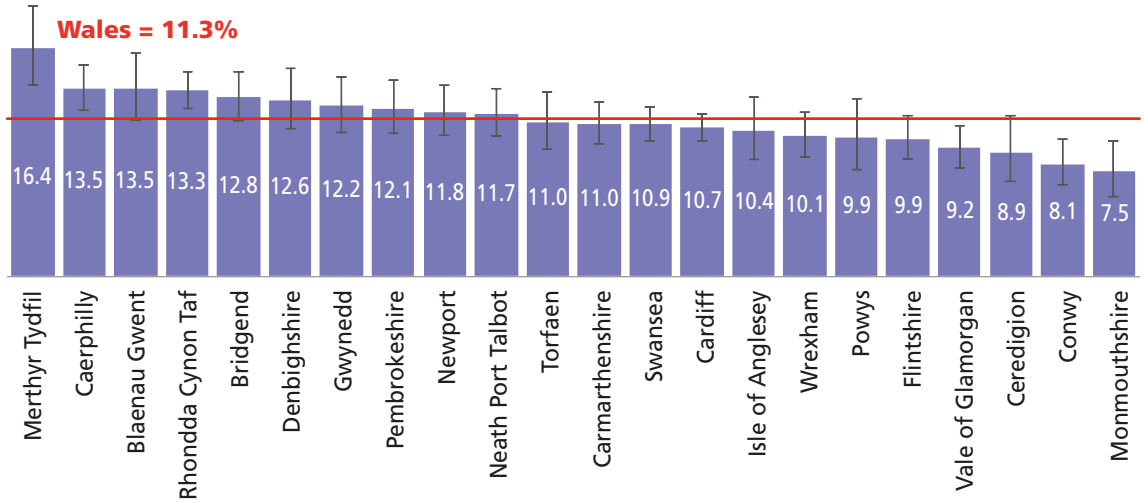
Produced by Public Health Wales Observatory, using CMP data (NWIS)

4.4 Obesity

11.3% of children in Wales had a BMI that was classified as obese. Again, prevalence varies by local authority (figure 12), health board (figure 13) and level of deprivation (figure 14).

Obesity levels are significantly higher than the national average in Merthyr Tydfil, Caerphilly and Rhondda Cynon Taf, and significantly lower in Monmouthshire, and also in Conwy and the Vale of Glamorgan.

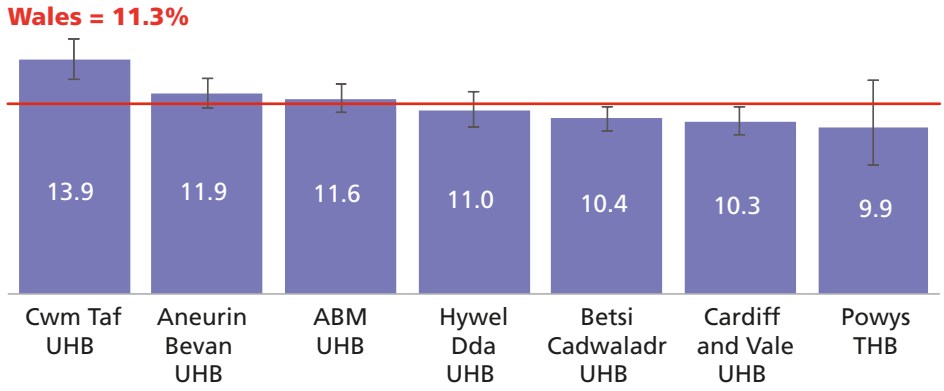
Figure 12 Proportion of children aged 4 to 5 years who are obese, Wales and local authorities, Child Measurement Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

The information in Figure 12 is also available as a map in Appendix 5.

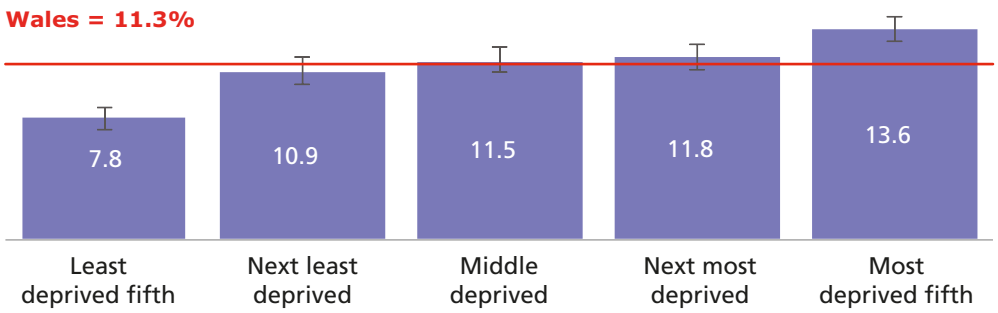
Figure 13 Proportion of children aged 4 to 5 years who are obese, Wales and health boards, Child Measurement Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

As with the prevalence of overweight and obesity combined, obesity is associated with deprivation (figure 14). Obesity prevalence in children living in the most deprived areas in Wales is 13.6, compared to the Welsh average of 11.3%, and 7.8% in the least deprived areas. Obesity prevalence by deprivation quintile is very similar in boys and girls and the figures are available in Appendix 3.

Figure 14 Proportion of children aged 4 to 5 years who are obese, Welsh Index of Multiple Deprivation quintiles, Child Measurement Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

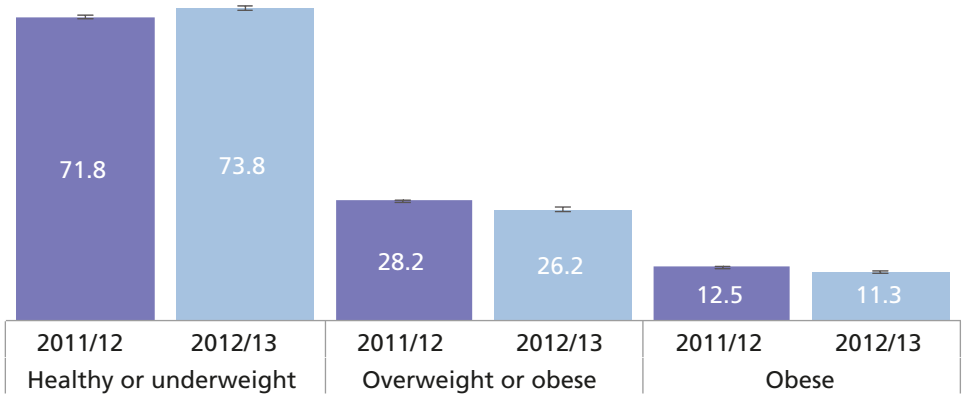
4.5 Underweight children

Because of the small numbers involved, underweight and healthy weight categories have been combined when the information is presented at health board or local authority level. This is to avoid the potential identification of individual children who are deemed to be underweight. Prevalence of underweight children was 0.6% across Wales, but 0.7% in boys and 0.5% in girls, however this difference was not significant. The highest prevalence of underweight children was 1.5% in Cardiff and Vale University Health Board. It is not clear why this is but it is also the area with the largest black and minority ethnic (BME) population in Wales and it is possible that this could have impacted on this result. More information about variations by ethnic origin is given in section 4.8.

4.6 Comparison with 2011/12

There is now information available for the Child Measurement Programme for two consecutive years. (Figure 15). Caution should be used in drawing conclusions until data or more years becomes available.

Figure 15 Children aged 4 to 5 years by weight category, Wales, Child Measurement Programme for Wales, comparison 2011/12 and 2012/13

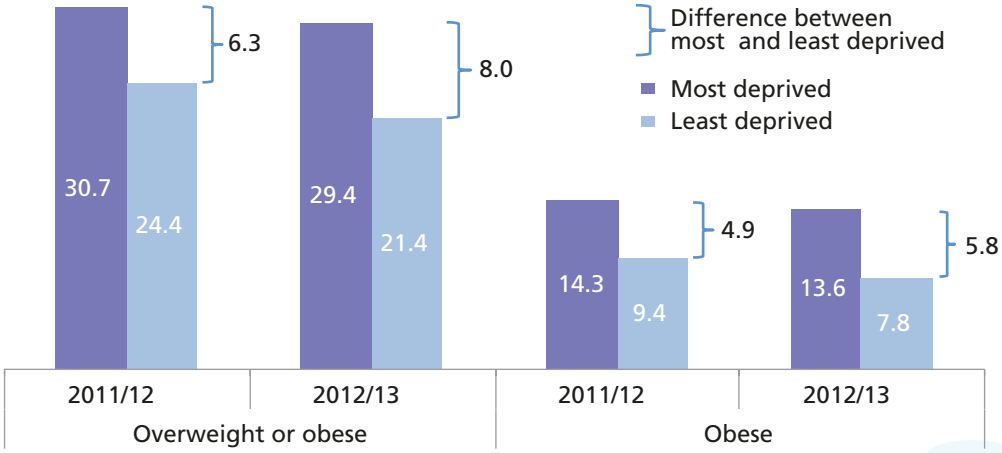


Produced by Public Health Wales Observatory, using CMP data (NWIS)

However as already stated 26.2% of children measured in 2012/13 were overweight or obese. This is lower than the previous year (28.2% in 2011/12) and this does appear to be significant. However the apparent fall in prevalence should be treated with caution until data for future years become available. It is only when there is several years' worth of data that it would be possible to identify any consistent trends.

There appears to have been a fall in overall prevalence of obesity and overweight and obesity in all deprivation groups. However of concern is that the absolute gap (Figure 16) in prevalence of obesity between the least and most deprived areas of Wales has increased by 0.9% (from 4.9% to 5.8%), and for those overweight or obese by 1.7% (from 6.3% to 8.0%). So prevalence of both obesity alone and 'overweight plus obesity' appears to have fallen faster in areas with least deprivation, and the latter appears to be statistically significant.

Figure 16 Proportion of children aged 4 to 5 years who are overweight or obese, and obese, by the most and least deprivation fifths, Child Measurement Programme for Wales, 2011/12 and 2012/13



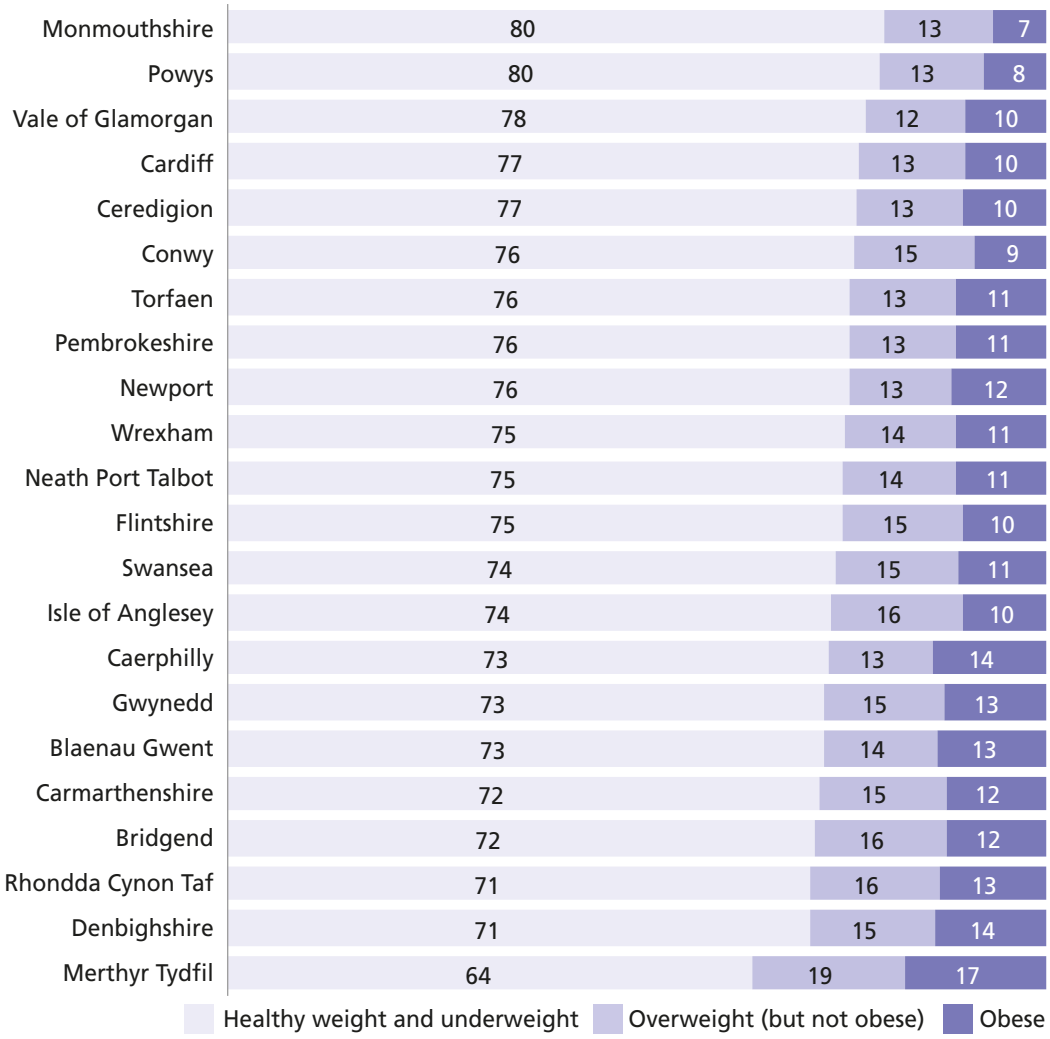
Produced by Public Health Wales Observatory, using CMP data (NWIS)

4.7 Gender

Although there appears to be a difference in prevalence of 'overweight or obesity' between boys and girls, with girls apparently having lower prevalence (25.6%) than boys (26.8%) this is not statistically significant at a national level.

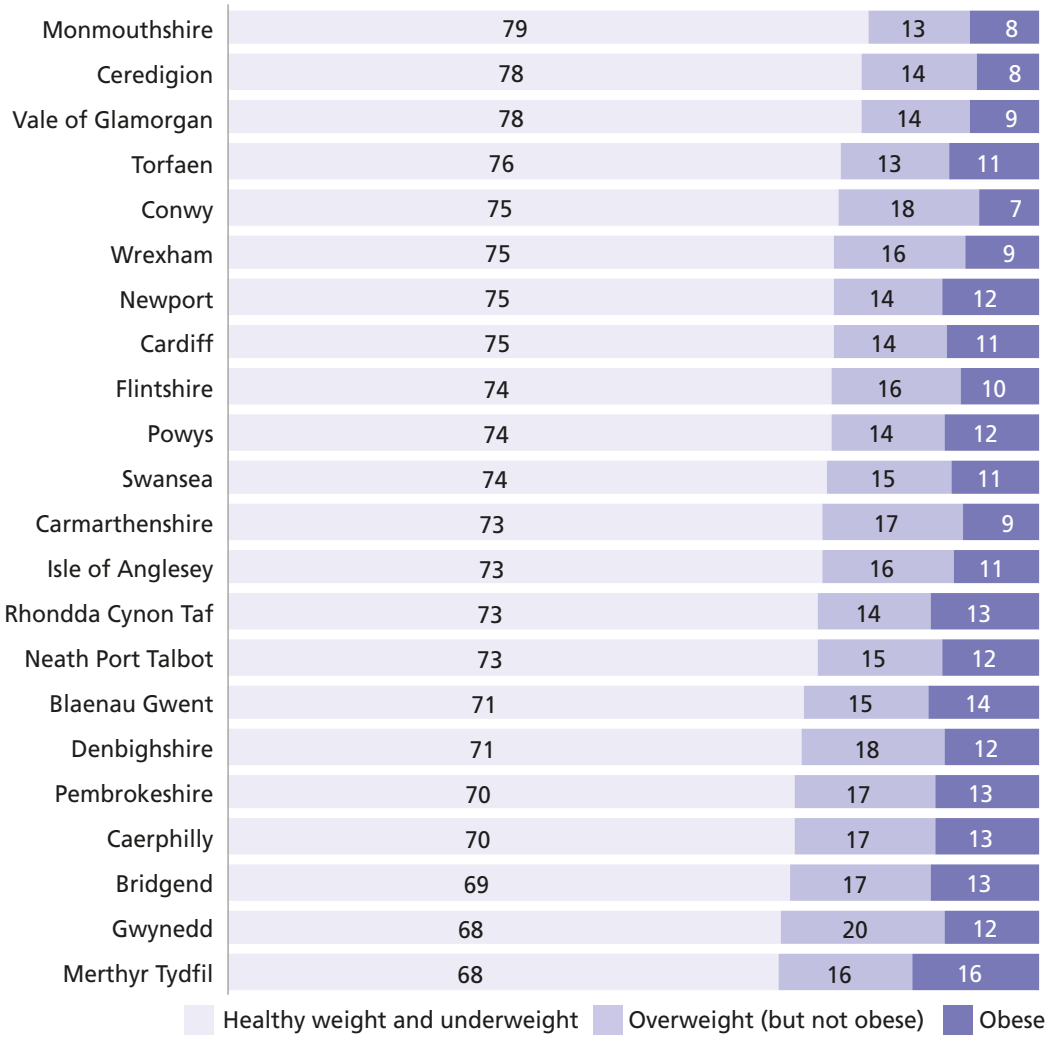
Figures 17 and 18 show the difference between boys and girls in Wales by local authority for healthy weight, overweight and obesity. Prevalence for all categories, at all levels (local authority, health board and deprivation quintile) for both boys and girls was broadly similar. The exception is that boys are significantly more likely than girls to fall in the category of 'overweight but not obese' however this is only significant at an all Wales level.

Figure 17 Weight category amongst girls aged 4 to 5 years, percentage by local authority, Child Measurment Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

Figure 18 Weight category amongst boys aged 4 to 5 years, percentage by local authority, Child Measurment Programme for Wales, 2012/13



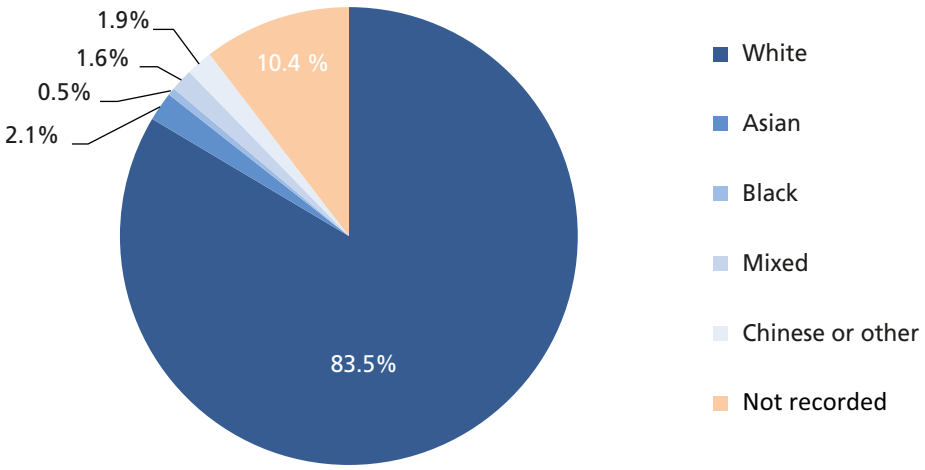
Produced by Public Health Wales Observatory, using CMP data (NWIS)

4.8 Ethnicity

This year analysis of child growth by ethnicity is available. These figures should be viewed with a certain amount of caution as ethnicity recording on the National Community Child Health Database (NCCHD) is not complete – the ethnicity of just over 10% of children in this age group was either not recorded or recorded as not known. The number of children with an ethnic origin other than white recorded was 1,768 (6%).

A further issue is that just under half (49%) of the children had had their ethnicity recorded according to computer codes that were discontinued in 2002 (despite being born well after 2002). These old codes did not include a code for children of mixed race. Therefore it is not known how children of mixed race were categorised prior to 2002, although the expectation is that they would have been coded into the classification 'other'. There are separate codes for children of mixed race post-2002.

Figure 19 Ethnicity data from the Child Measurement Programme for Wales, children aged 4 to 5 years, 2012/13



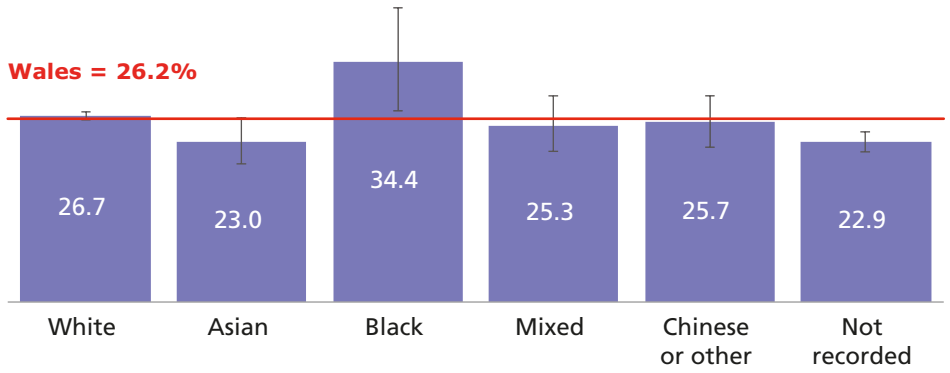
Produced by Public Health Wales Observatory, using CMP data (NWIS)

Because of the small numbers of children from an ethnic background other than white, even at an all Wales level, the 16 categories available have been condensed down to five broader categories (see Appendix 2), and a category for not known/not recorded is included. BMI by ethnicity has also only been classified in two categories – healthy or underweight, and obese or overweight. It is not possible to present information by ethnicity on children who are obese but not overweight or vice versa. Again this is because of the small number of children involved. In future years it will be possible to collate the information for several years at a time to present more detailed information. Children classified as white will include children born outside the UK, or born to parents from elsewhere e.g. Europe.

According to the 2011 Census[13] four percent of the total population of Wales were from a Black or Minority Ethnic (BME) background. This was an increase from 2.1% in 2001. The majority of those from a BME background living in Wales were of Asian origin. The age profile of people from a BME background varies, with six percent being aged under 25, compared with 30% of the total population falling within this age group. Meanwhile six percent of the population living in Wales were born outside the UK, with the greater number (2.4%) being born in Europe followed by Asia (1.6%). Polish is the commonest single language in Wales after English or Welsh.

The majority of people living in Wales from a BME background live in the south east in either Cardiff or Newport. The number of children from a BME background who were eligible to participate in the Child Measurement Programme is small (1,768) so it is not permitted to give information on their BMI at a health board or local authority level, as this could result in identification of individual children. Figure 20 therefore shows the information at an all-Wales level. The highest prevalence of overweight and obesity in reception year in Wales is seen in children of black origin (34.4%) and the lowest in children of Asian origin (23.0%). However only the prevalence in children of black origin is significantly different from the prevalence for Wales (26.2%).

Figure 20 Proportion of children aged 4 to 5 years who are overweight or obese, ethnic groups, Child Measurement Programme for Wales, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

While the numbers are small, the higher proportion of children of black origin who are classified as obese or overweight (using the UK90 Growth Reference) is similar to information from elsewhere including England[14]. In 2012/13 29.9% of children described as Black or Black British in the reception year age group in England were classified as overweight or obese compared to the England average of 22%.

The links between childhood obesity and deprivation are well documented, and children from a black or minority ethnic background are more likely to live in the more deprived urban areas. However as discussed elsewhere in this report (Section 5.3 Classifying a Child's BMI) the growth charts used to calculate a child's BMI are based on a large sample size of children who are of white origin. Children of differing ethnicity may grow at different rates, and have different body fat distributions. In adolescents for example, there is limited information[15] that for the same level of BMI, young people of African ethnicity carry less body fat than the general population.

4.9 Low height

137 (0.5%) of the children measured in Wales in 2012/13 were found to be of low height. That is, their height was below the 0.4th centile.

The UK National Screening Committee recommend[16] that children with a height at school entry of less than the 0.4th centile should be referred for assessment for short stature. Because the number of children of low height is small, it is not possible to give a breakdown by geographical area. However the prevalence of low height is similar across Wales. There were slightly more boys identified (57%) than girls (43%), however there were more measurements for boys than for girls in the programme and the difference is not statistically significant.

Further guidance will be issued to staff involved in the Child Measurement Programme during 2014 to remind them of the importance of identifying children with low height and appropriate referral pathways.

4.10 Comparisons with England

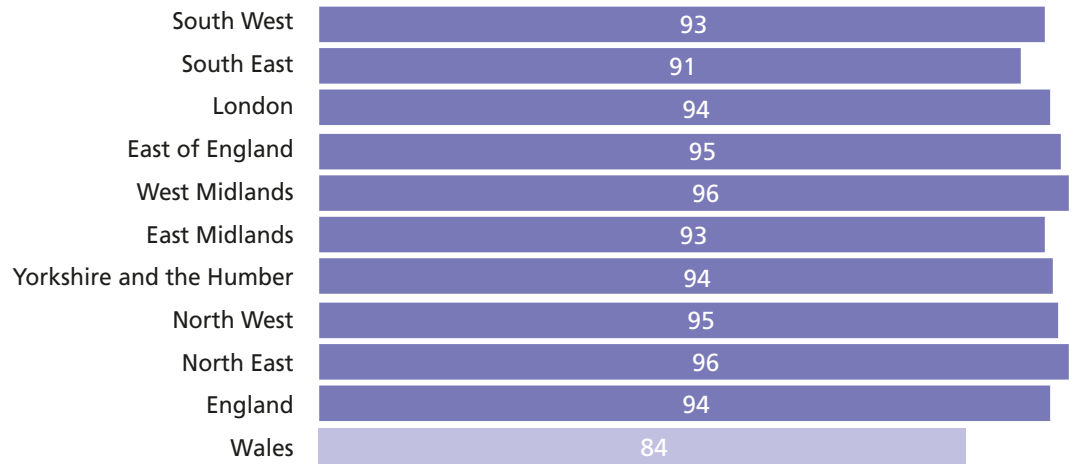
A national child measurement programme was commenced in England in 2006. This programme includes child measurements taken in reception year and Year 6. Responsibility for this programme transferred from the NHS to local authorities in England in April 2013. Prior to April 2013 responsibility for the programme was with the NHS, which at the time was split into strategic health authorities, so the measurements were presented at a strategic health authority level. This is useful for drawing comparisons with child growth in reception year in Wales, as strategic health authorities had a population size of

between 2.5 million and 8 million, while the population of Wales is about 3,060,000. But this may be the last year in which results in England are available at this level as Strategic Health Authorities no longer exist.

The programme in England is now in its' seventh year, and participation has increased over those years from 80% in the second year 2006/7 to over 90% in all regions now. In the first year in England participation was about 48%.

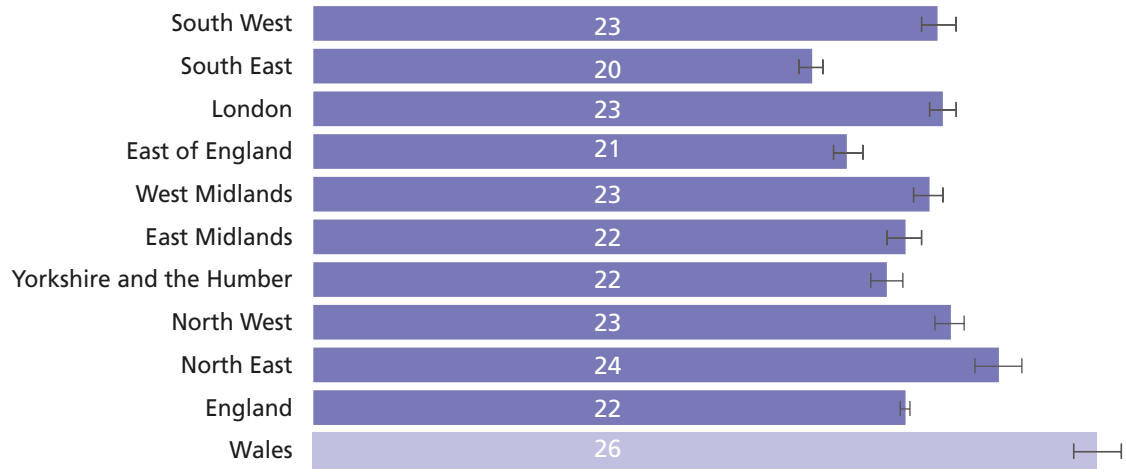
Figure 22 gives the comparisons with regions in England. 26% of children who were measured in reception year in Wales were found to be overweight or obese. This is higher than any of the regions in England, where prevalence ranges from 20% in the South East region to 24% in the North East, with an average for England of 22%.

Figure 21 Proportion of children aged 4 to 5 participating in a Child Measurement Programme, Wales, England and English regions, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS) and NCMP data (HSCIC)

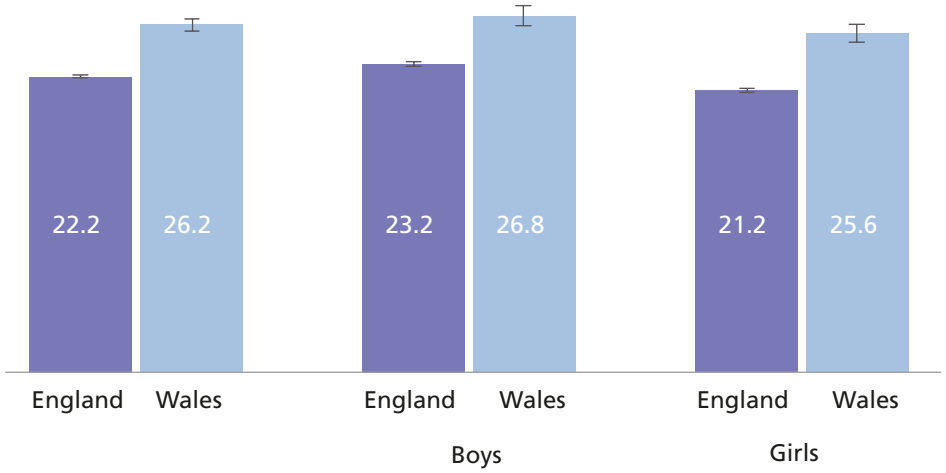
Figure 22 Proportion of children aged 4 to 5 years who are overweight or obese, Wales, England and English regions, Child Measurement Programme for Wales and the National Child Measurement Programme (England), 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS) and NCMP data (HSCIC)

Figure 23 compares obesity prevalence by sex across England and Wales. Both girls and boys in Wales have significantly higher prevalence of obesity or overweight than children in England.

Figure 23 Proportion of children aged 4 to 5 years who are overweight or obese, Wales and England, Child Measurement Programme for Wales and the National Child Measurement Programme (England), 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS) and NCMP data (HSCIC)

Methods

5

All measurements were taken during the academic year 2012/13 in line with the Child Measurement Programme Standards and Guidance. Measurements of height and weight were recorded to the nearest 0.1 cm and 0.1 kg resepectively in order to establish an accurate BMI measurement.

5.1 The measurement process

Most School Health teams have routinely weighed and measured children in reception year for many years. With the introduction of the Child Measurement Programme this is now being done in a standardised way, with all health professionals given additional training and equipment.

5.2 BMI in adults

Once someone has reached adulthood, the thresholds at which they are deemed to be of normal weight, under or overweight or obese remain the same. BMI is calculated by dividing a person's weight in kilograms by their height in metres squared (kg/m^2).
The BMI thresholds for adults are as follows:

- BMI of less than 18.5 is deemed underweight
- BMI of 18.5 and above, but less than 25 is deemed normal weight
- BMI of 25 and above, but less than 30 is deemed overweight
- BMI of 30 and above, but less than 40 is deemed obese
- BMI of 40 or more is deemed morbidly obese

5.3 Classifying a child's BMI

The classification of children's BMI differs from the classification of adult BMI as it changes as they mature. It also differs between boys and girls as the rates at which the different sexes grow differs.

In children the BMI is categorised using variable thresholds that alter depending on a child's age and sex. Each child's BMI is then assessed against a reference population or growth reference derived from the measurements of a large sample of children of the same age and sex. There are a number of different growth reference scales available, but for this programme UK90 was selected. The reference scale is divided into 100 units known as centiles (see Appendix 1 for a sample centile chart). Depending on where on this UK90 growth / centile chart each child is, they are assigned to one of the following categories in population studies:

- Underweight: less than but not including the second centile
- Healthy weight: second centile up to but not including the 85th centile
- Overweight but not obese: 85th centile up to and not including 95th centile
- Obese: 95th centile and above

There is no standard definition of morbid obesity in children in common use. Slightly different thresholds are used for clinical purposes rather than population surveillance purposes, i.e. NICE recommend interventions for children with a BMI on or above the 91st

centile[17] rather than the 85th centile which is the threshold for obesity in clinical settings.

Prevalence rates were calculated using age and sex-specific BMI centiles, using the British 1990 growth reference (UK90) from a method proposed by Cole et al[18]. The BMI was calculated using a method proposed by Keys et al[19]. The British 1990 growth reference (UK90) is also used in the National Child Measurement Programme for England. The measurements which informed UK90 were drawn from seven major studies of growth in the UK, and comprise measurements of over 30,000 children[20] and young people between 33 weeks of gestation and age 23 years. One criticism of this growth reference is that measurements of only a small number of children from ethnic minority backgrounds were available in the studies and these were not included, although there are known variations in growth patterns between children from different ethnic groups[21].

Other growth references used internationally include those developed by the World Health Organization (WHO), Center for Disease Control in the USA (CDC) and the International Obesity Task Force (IOTF). Comparisons between obesity prevalence across populations should only be made if the same growth reference has been used, as they do differ. The National Obesity Observatory in England have published a useful guide[22] which gives more information about each of the above growth references.

The distributions of height, weight and BMI are shown in Appendix 4. There is a symmetrical distribution for height and a skewed distribution for weight and BMI, and this follows the pattern shown in the Child Measurement Programme published in 2013.

5.4 Which records are included?

Records have been included in the Programme if they meet all of the following criteria:

- The location of residence can be determined.
- The child is resident in Wales.
- The school is located in Wales.
- They were born in the period September 2007 to August 2008.
- The child's sex is recorded.

Eligible records were included in the number measured, if they met all of the following criteria:

- The height measurement is recorded and is not an implausible measurement‡.
- The weight measurement is recorded and is not an implausible measurement‡.
- Consent has not been withdrawn.
- The measurement was collected during the academic year 2012/13.

5.5 Small number suppression

When information is released in detail there is the risk that individuals could be identified even though their names, addresses or dates of birth have been removed. This risk is exacerbated if two or more sources of data are compared or the data is describing uncommon events. When the data is describing events or information that only applies to very few people in the information set, or to people living in a small geographical area, people's identities can be protected by adding in safeguards such as "small number suppression".

In this report, small numbers between 0 and 4 have been suppressed to avoid potential identification of individuals. In this report, this mainly relates to children who were underweight or of low height. Suppression of related data has also been performed where suppressed numbers could have been derived from totals.

In order to avoid potentially identifying individual children in local authority or health board areas, the information about children who are seen as underweight is combined with children seen as being of healthy weight.

‡ In some cases it was apparent that human error had resulted in the wrong figures being entered into the wrong fields. Although it appeared as if the height and weight measurements had been switched there was no way to confirm this so the measurements were not included.

5.6 Confidence intervals and statistical significance

When looking at any information it is important to make an assessment of reliability of that information, and this is usually done in one of two ways:

- By calculating confidence intervals (CIs).
- By carrying out a test for statistical significance.

Confidence intervals are indications of the natural variation that would be expected around a rate and they should be considered when assessing or interpreting a rate. The size of the confidence interval is dependent on the number of events occurring and the size of the population from which the events came. Generally speaking, rates based on small numbers of events and small populations are likely to have wider confidence intervals. Conversely, rates based on large populations are likely to have narrower confidence intervals.

In this report, 95% CIs were calculated using a method proposed by Wilson et al as described by Altman et al[23] (2000).

A simple explanation of the confidence interval is that we can be 95% confident that the true figure is within the range given for prevalence of overweight and obesity (for example) if all eligible children in Wales had been included in the programme.

A "statistically significant" finding suggests that the difference between two values might not be due to chance. In this publication, statistical significance is evaluated by the comparison of the 95% CIs of given values instead of carrying out a statistical test for significance. If CIs do not overlap then the value is considered to be statistically significantly different. Deeming a local value as statistically significant suggests that there is only 5% chance of it being different to the Wales average due to natural variation alone. The phrase 'similar to' is used within the report when values were not statistically significantly different.

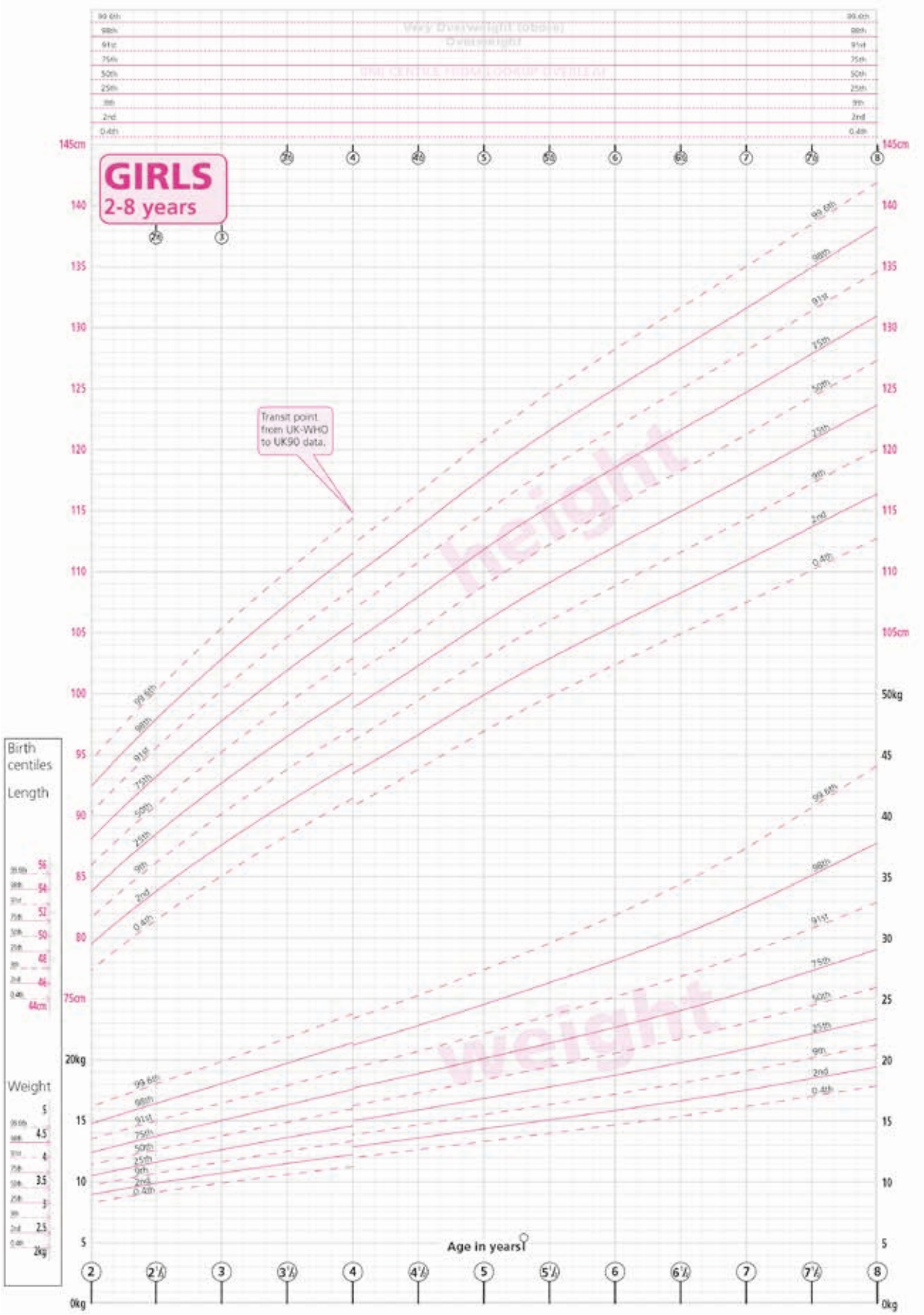
Conclusions

6

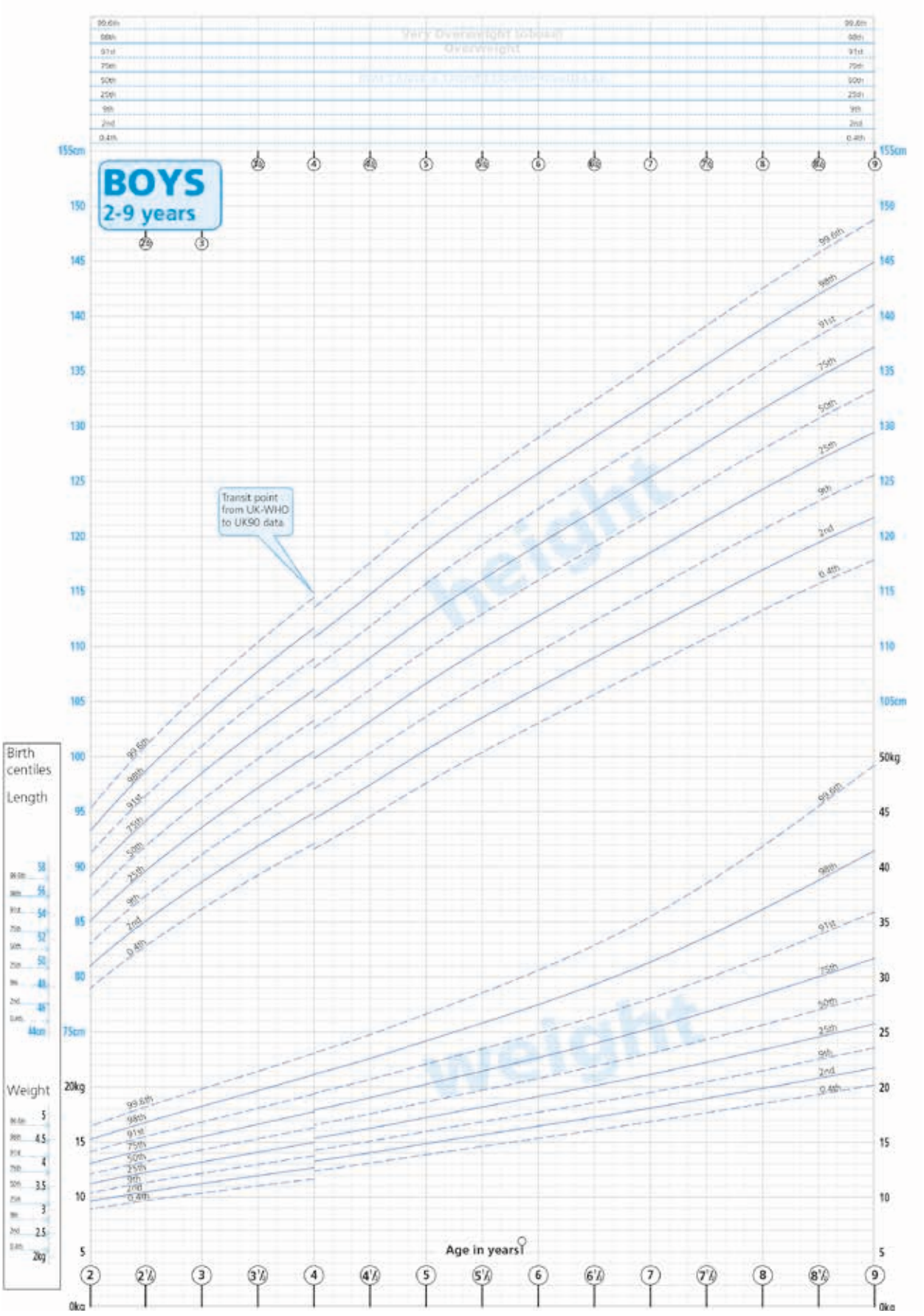
- This second report of the Child Measurement Programme for Wales adds to existing knowledge about child growth in children age four to five in Wales.
- Prevalence of obesity and overweight in this cohort of children appears to be higher than in any one of the regions in England.
- There has been an apparent fall in prevalence of overweight and obesity in children in this age group since the first report of the Programme. However more information is needed for future years to establish whether this is in fact a trend that will continue.
- This is the first year that some analysis of growth by ethnic origin of children in Wales, has been included and the results suggest that children of black ethnic origin are at higher risk of being overweight or obese than any other group including white origin. However the number of children of any ethnic origin other than white is small, and information for future years is needed before firm conclusions can be made.
- The information in this report may be useful to assist staff working in health boards and local authorities to target scarce resources towards enhancing and developing services aimed at combating obesity.
- It is hoped that the 2015 report on children measured in 2013/14 will include analysis looking at children living in urban or rural settings.

Appendices

Appendix 1 Sample centile charts



Appendix 1 Sample centile charts



Appendix 2

Recording of ethnicity

The following codes had been used to record the ethnicity of children on the Child Health Database. Some of the codes used were supposed to have been discontinued by the NHS in 2002 and all children in this Child Measurement Programme were born well after 2002. However some children were still classified according to discontinued codes

Codes A-Z used post 31st March 2002.	Codes 0-9 used pre 31st March 2002.
A = White British	0 = Caucasian
B = White Irish	1 = White
C = Other White Background	2 = Black (Caribbean)
D = Mixed White & Black Caribbean	3 = Black (African)
E = Mixed White & Black African	4 = Black (Other)
F = Mixed White & Asian	5 = Indian
G = Any Other Mixed Background	6 = Pakistani
H = Indian (Asian or British)	7 = Bangladeshi
J = Pakistani (Asian or British)	8 = Chinese
K = Bangladeshi (Asian or British)	9 = Other ethnic group
L = Any Other Asian Background	
M = Caribbean (Black or Black British)	
N = African(Black or Black British)	
P = Other (Black or Black British)	
R = Chinese	
S = Any Other Ethnic Group	

The colour coding above reflects the five categories (previously four categories pre-2002) used in the Child Measurment Programme. The existing categories have been condensed to suppress small numbers. There were no codes in use before 2002 to describe children of mixed race.

Appendix 3 Reference Tables

Participation in the Child Measurement Programme for Wales§, children aged 4 to 5 years, 2012/2013

All Children	All				Boys				Girls			
	Eligible	Measured	Not Measured	% Uptake	Eligible	Measured	Not Measured	% Uptake	Eligible	Measured	Not Measured	% Uptake
Wales	**34,679**	**29,238**	**5,441**	**84.3**	**17,723**	**14,891**	**2,832**	**84.0**	**16,956**	**14,347**	**2,609**	**84.6**
Least deprived fifth	5,873	5,088	785	86.6	3,005	2,583	422	86.0	2,868	2,505	363	87.3
Next least deprived	6,045	4,989	1,056	82.5	3,102	2,538	564	81.8	2,943	2,451	492	83.3
Middle deprived	6,632	5,637	995	85.0	3,388	2,868	520	84.7	3,244	2,769	475	85.4
Next most deprived	7,314	6,071	1,243	83.0	3,692	3,067	625	83.1	3,622	3,004	618	82.9
Most deprived fifth	8,815	7,453	1,362	84.5	4,536	3,835	701	84.5	4,279	3,618	661	84.6
Betsi Cadwaladr UHB	**7,615**	**6,475**	**1,140**	**85.0**	**3,865**	**3,273**	**592**	**84.7**	**3,750**	**3,202**	**548**	**85.4**
Isle of Anglesey	755	690	65	91.4	360	332	28	92.2	395	358	37	90.6
Gwynedd	1,232	1,006	226	81.7	646	516	130	79.9	586	490	96	83.6
Conwy	1,146	1,067	79	93.1	565	531	34	94.0	581	536	45	92.3
Denbighshire	1,090	928	162	85.1	576	481	95	83.5	514	447	67	87.0
Flintshire	1,720	1,413	307	82.2	887	733	154	82.6	833	680	153	81.6
Wrexham	1,672	1,371	301	82.0	831	680	151	81.8	841	691	150	82.2
Powys THB	**1,267**	**534**	**733**	**42.1**	**664**	**280**	**384**	**42.2**	**603**	**254**	**349**	**42.1**
Hywel Dda UHB	**3,865**	**3,333**	**532**	**86.2**	**1,918**	**1,639**	**279**	**85.5**	**1,947**	**1,694**	**253**	**87.0**
Ceredigion	615	562	53	91.4	311	277	34	89.1	304	285	19	93.8
Pembrokeshire	1,279	1,119	160	87.5	640	557	83	87.0	639	562	77	87.9
Carmarthenshire	1,971	1,652	319	83.8	967	805	162	83.2	1,004	847	157	84.4
ABM UHB	**5,833**	**5,237**	**596**	**89.8**	**3,010**	**2,692**	**318**	**89.4**	**2,823**	**2,545**	**278**	**90.2**
Swansea	2,732	2,483	249	90.9	1,377	1,238	139	89.9	1,355	1,245	110	91.9
Neath Port Talbot	1,522	1,351	171	88.8	813	719	94	88.4	709	632	77	89.1
Bridgend	1,579	1,403	176	88.9	820	735	85	89.6	759	668	91	88.0
Cardiff and Vale UHB	**5,693**	**5,106**	**587**	**89.7**	**2,925**	**2,604**	**321**	**89.0**	**2,768**	**2,502**	**266**	**90.4**
The Vale of Glamorgan	1,499	1,369	130	91.3	785	703	82	89.6	714	666	48	93.3
Cardiff	4,194	3,737	457	89.1	2,140	1,901	239	88.8	2,054	1,836	218	89.4
Cwm Taf UHB	**3,524**	**3,241**	**283**	**92.0**	**1,794**	**1,664**	**130**	**92.8**	**1,730**	**1,577**	**153**	**91.2**
Rhondda Cynon Taf	2,782	2,589	193	93.1	1,400	1,312	88	93.7	1,382	1,277	105	92.4
Merthyr Tydfil	742	652	90	87.9	394	352	42	89.3	348	300	48	86.2
Aneurn Bevan UHB	**6,882**	**5,312**	**1,570**	**77.2**	**3,547**	**2,739**	**808**	**77.2**	**3,335**	**2,573**	**762**	**77.2**
Caerphilly	2,202	1,746	456	79.3	1,140	896	244	78.6	1,062	850	212	80.0
Blaenau Gwent	802	773	29	96.4	424	411	13	96.9	378	362	16	95.8
Torfaen	1,060	861	199	81.2	552	443	109	80.3	508	418	90	82.3
Monmouthshire	882	652	230	73.9	443	332	111	74.9	439	320	119	72.9
Newport	1,936	1,280	656	66.1	988	657	331	66.5	948	623	325	65.7

§ Produced by Public Health Wales Observatory, using CMP data (NWIS), WIMD 2011 (WG)

Key data from the Child Measurement Programme for Wales**, children aged 4 to 5 years, 2012/2013

All Children	Healthy weight or underweight			Overweight or obese			Underweight			Healthy weight			Overweight not obese			Obese		
	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]
Wales	**21,579**	**73.8**	(73.3,74.3)	**7,659**	**26.2**	(25.7,26.7)	**179**	**0.6**	(0.5,0.7)	**21,400**	**73.2**	(72.7,73.7)	**4,343**	**14.9**	(14.5,15.3)	**3,316**	**11.3**	(11.0,11.7)
Least deprived fifth	3,999	78.6	(77.4,79.7)	1,089	21.4	(20.3,22.6)	33	0.6	(0.5,0.9)	3,966	77.9	(76.8,79.1)	691	13.6	(12.7,14.5)	398	7.8	(7.1,8.6)
Next least deprived	3,739	74.9	(73.7,76.1)	1,250	25.1	(23.9,26.3)	29	0.6	(0.4,0.8)	3,710	74.4	(73.1,75.6)	708	14.2	(13.3,15.2)	542	10.9	(10.0,11.8)
Middle deprived	4,150	73.6	(72.5,74.8)	1,487	26.4	(25.2,27.5)	27	0.5	(0.3,0.7)	4,123	73.1	(72.0,74.3)	836	14.8	(13.9,15.8)	651	11.5	(10.7,12.4)
Next most deprived	4,428	72.9	(71.8,74.0)	1,643	27.1	(26.0,28.2)	35	0.6	(0.4,0.8)	4,393	72.4	(71.2,73.5)	929	15.3	(14.4,16.2)	714	11.8	(11.0,12.6)
Most deprived fifth	5,263	70.6	(69.6,71.6)	2,190	29.4	(28.4,30.4)	55	0.7	(0.6,1.0)	5,208	69.9	(68.8,70.9)	1,179	15.8	(15.0,16.7)	1,011	13.6	(12.8,14.4)
Betsi Cadwaladr UHB	**4,765**	**73.6**	(72.5,74.7)	**1,710**	**26.4**	(25.3,27.5)	**24**	**0.4**	(0.2,0.6)	**4,741**	**73.2**	(72.1,74.3)	**1,034**	**16.0**	(15.1,16.9)	**676**	**10.4**	(9.7,11.2)
Isle of Anglesey	507	73.5	(70.1,76.6)	183	26.5	(23.4,29.9)	-	-	-	-	-	-	111	16.1	(13.5,19.0)	72	10.4	(8.4,12.9)
Gwynedd	707	70.3	(67.4,73.0)	299	29.7	(27.0,32.6)	-	-	-	-	-	-	176	17.5	(15.3,20.0)	123	12.2	(10.3,14.4)
Conwy	808	75.7	(73.1,78.2)	259	24.3	(21.8,26.9)	-	-	-	-	-	-	173	16.2	(14.1,18.5)	86	8.1	(6.6,9.8)
Denbighshire	658	70.9	(67.9,73.7)	270	29.1	(26.3,32.1)	-	-	-	-	-	-	153	16.5	(14.2,19.0)	117	12.6	(10.6,14.9)
Flintshire	1,056	74.7	(72.4,76.9)	357	25.3	(23.1,27.6)	7	0.5	(0.2,1.0)	1,049	74.2	(71.9,76.5)	217	15.4	(13.6,17.3)	140	9.9	(8.5,11.6)
Wrexham	1,029	75.1	(72.7,77.3)	342	24.9	(22.7,27.3)	6	0.4	(0.2,1.0)	1,023	74.6	(72.2,76.8)	204	14.9	(13.1,16.9)	138	10.1	(8.6,11.8)
Powys THB	**410**	**76.8**	(73.0,80.2)	**124**	**23.2**	(19.8,27.0)	**5**	**0.9**	(0.4,2.2)	**405**	**75.8**	(72.0,79.3)	**71**	**13.3**	(10.7,16.4)	**53**	**9.9**	(7.7,12.8)
Hywel Dda UHB	**2,452**	**73.6**	(72.0,75.0)	**881**	**26.4**	(25.0,28.0)	**13**	**0.4**	(0.2,0.7)	**2,439**	**73.2**	(71.6,74.7)	**515**	**15.5**	(14.3,16.7)	**366**	**11.0**	(10.0,12.1)
Ceredigion	435	77.4	(73.8,80.7)	127	22.6	(19.3,26.2)	-	-	-	-	-	-	77	13.7	(11.1,16.8)	50	8.9	(6.8,11.5)
Pembrokeshire	815	72.8	(70.2,75.4)	304	27.2	(24.6,29.8)	-	-	-	-	-	-	169	15.1	(13.1,17.3)	135	12.1	(10.3,14.1)
Carmarthenshire	1,202	72.8	(70.6,74.9)	450	27.2	(25.1,29.4)	7	0.4	(0.2,0.9)	1,195	72.3	(70.1,74.4)	269	16.3	(14.6,18.1)	181	11.0	(9.5,12.6)
ABM UHB	**3,826**	**73.1**	(71.8,74.2)	**1,411**	**26.9**	(25.8,28.2)	**29**	**0.6**	(0.4,0.8)	**3,797**	**72.5**	(71.3,73.7)	**802**	**15.3**	(14.4,16.3)	**609**	**11.6**	(10.8,12.5)
Swansea	1,840	74.1	(72.3,75.8)	643	25.9	(24.2,27.7)	21	0.8	(0.6,1.3)	1,819	73.3	(71.5,75.0)	372	15.0	(13.6,16.4)	271	10.9	(9.7,12.2)
Neath Port Talbot	998	73.9	(71.5,76.1)	353	26.1	(23.9,28.5)	-	-	-	-	-	-	195	14.4	(12.7,16.4)	158	11.7	(10.1,13.5)
Bridgend	988	70.4	(68.0,72.8)	415	29.6	(27.2,32.0)	-	-	-	-	-	-	235	16.7	(14.9,18.8)	180	12.8	(11.2,14.7)
Cardiff and Vale UHB	**3,895**	**76.3**	(75.1,77.4)	**1,211**	**23.7**	(22.6,24.9)	**57**	**1.1**	(0.9,1.4)	**3,838**	**75.2**	(74.0,76.3)	**685**	**13.4**	(12.5,14.4)	**526**	**10.3**	(9.5,11.2)
The Vale of Glamorgan	1,066	77.9	(75.6,80.0)	303	22.1	(20.0,24.4)	9	0.7	(0.3,1.2)	1,057	77.2	(74.9,79.4)	177	12.9	(11.3,14.8)	126	9.2	(7.8,10.9)
Cardiff	2,829	75.7	(74.3,77.1)	908	24.3	(22.9,25.7)	48	1.3	(1.0,1.7)	2,781	74.4	(73.0,75.8)	508	13.6	(12.5,14.7)	400	10.7	(9.8,11.7)
Cwm Taf UHB	**2,295**	**70.8**	(69.2,72.4)	**946**	**29.2**	(27.6,30.8)	**21**	**0.6**	(0.4,1.0)	**2,274**	**70.2**	(68.6,71.7)	**494**	**15.2**	(14.0,16.5)	**452**	**13.9**	(12.8,15.2)
Rhondda Cynon Taf	1,864	72.0	(70.2,73.7)	725	28.0	(26.3,29.8)	15	0.6	(0.4,1.0)	1,849	71.4	(69.6,73.1)	380	14.7	(13.4,16.1)	345	13.3	(12.1,14.7)
Merthyr Tydfil	431	66.1	(62.4,69.6)	221	33.9	(30.4,37.6)	6	0.9	(0.4,2.0)	425	65.2	(61.4,68.7)	114	17.5	(14.8,20.6)	107	16.4	(13.8,19.4)
Aneurin Bevan UHB	**3,936**	**74.1**	(72.9,75.3)	**1,376**	**25.9**	(24.7,27.1)	**30**	**0.6**	(0.4,0.8)	**3,906**	**73.5**	(72.3,74.7)	**742**	**14.0**	(13.1,14.9)	**634**	**11.9**	(11.1,12.8)
Caerphilly	1,249	71.5	(69.4,73.6)	497	28.5	(26.4,30.6)	9	0.5	(0.3,1.0)	1,240	71.0	(68.8,73.1)	262	15.0	(13.4,16.8)	235	13.5	(11.9,15.1)
Blaenau Gwent	555	71.8	(68.5,74.9)	218	28.2	(25.1,31.5)	-	-	-	-	-	-	114	14.7	(12.4,17.4)	104	13.5	(11.2,16.0)
Torfaen	652	75.7	(72.8,78.5)	209	24.3	(21.5,27.2)	-	-	-	-	-	-	114	13.2	(11.1,15.7)	95	11.0	(9.1,13.3)
Monmouthshire	518	79.4	(76.2,82.4)	134	20.6	(17.6,23.8)	-	-	-	-	-	-	85	13.0	(10.7,15.8)	49	7.5	(5.7,9.8)
Newport	962	75.2	(72.7,77.4)	318	24.8	(22.6,27.3)	11	0.9	(0.5,1.5)	951	74.3	(71.8,76.6)	167	13.0	(11.3,15.0)	151	11.8	(10.1,13.7)

** Produced by Public Health Wales Observatory, using CMP data (NWIS), WIMD (WG). 1 95% confidence interval. - To avoid disclosure small numbers (0-4) and some larger complementary numbers have been suppressed.

Key data from the Child Measurement Programme for Wales††, boys aged 4 to 5 years, 2012/2013

Boys	Healthy weight or underweight			Overweight or obese			Underweight			Healthy weight			Overweight not obese			Obese		
	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]
Wales	**10,900**	**73.2**	(72.5,73.9)	**3,991**	**26.8**	(26.1,27.5)	**108**	**0.7**	(0.6,0.9)	**10,792**	**72.5**	(71.8,73.2)	**2,310**	**15.5**	(14.9,16.1)	**1,681**	**11.3**	(10.8,11.8)
Least deprived fifth	2,018	78.1	(76.5,79.7)	565	21.9	(20.3,23.5)	20	0.8	(0.5,1.2)	1,998	77.4	(75.7,78.9)	366	14.2	(12.9,15.6)	199	7.7	(6.7,8.8)
Next least deprived	1,873	73.8	(72.1,75.5)	665	26.2	(24.5,27.9)	19	0.7	(0.5,1.2)	1,854	73.0	(71.3,74.7)	388	15.3	(13.9,16.7)	277	10.9	(9.8,12.2)
Middle deprived	2,104	73.4	(71.7,74.9)	764	26.6	(25.1,28.3)	11	0.4	(0.2,0.7)	2,093	73.0	(71.3,74.6)	442	15.4	(14.1,16.8)	322	11.2	(10.1,12.4)
Next most deprived	2,222	72.4	(70.8,74.0)	845	27.6	(26.0,29.2)	20	0.7	(0.4,1.0)	2,202	71.8	(70.2,73.4)	485	15.8	(14.6,17.1)	360	11.7	(10.6,12.9)
Most deprived fifth	2,683	70.0	(68.5,71.4)	1,152	30.0	(28.6,31.5)	38	1.0	(0.7,1.4)	2,645	69.0	(67.5,70.4)	629	16.4	(15.3,17.6)	523	13.6	(12.6,14.8)
Betsi Cadwaladr UHB	**2,386**	**72.9**	(71.4,74.4)	**887**	**27.1**	(25.6,28.6)	**14**	**0.4**	(0.3,0.7)	**2,372**	**72.5**	(70.9,74.0)	**563**	**17.2**	(15.9,18.5)	**324**	**9.9**	(8.9,11.0)
Isle of Anglesey	243	73.2	(68.2,77.7)	89	26.8	(22.3,31.8)	-	-	-	-	-	-	54	16.3	(12.7,20.6)	35	10.5	(7.7,14.3)
Gwynedd	351	68.0	(63.9,71.9)	165	32.0	(28.1,36.1)	-	-	-	-	-	-	104	20.2	(16.9,23.8)	61	11.8	(9.3,14.9)
Conwy	399	75.1	(71.3,78.6)	132	24.9	(21.4,28.7)	-	-	-	-	-	-	93	17.5	(14.5,21.0)	39	7.3	(5.4,9.9)
Denbighshire	340	70.7	(66.5,74.6)	141	29.3	(25.4,33.5)	-	-	-	-	-	-	85	17.7	(14.5,21.3)	56	11.6	(9.1,14.8)
Flintshire	545	74.4	(71.1,77.4)	188	25.6	(22.6,28.9)	-	-	-	-	-	-	117	16.0	(13.5,18.8)	71	9.7	(7.8,12.0)
Wrexham	508	74.7	(71.3,77.8)	172	25.3	(22.2,28.7)	-	-	-	-	-	-	110	16.2	(13.6,19.1)	62	9.1	(7.2,11.5)
Powys THB	**208**	**74.3**	(68.9,79.1)	**72**	**25.7**	(20.9,31.1)	-	-	-	-	-	-	**39**	**13.9**	(10.4,18.5)	**33**	**11.8**	(8.5,16.1)
Hywel Dda UHB	**1,195**	**72.9**	(70.7,75.0)	**444**	**27.1**	(25.0,29.3)	-	-	-	-	-	-	**275**	**16.8**	(15.0,18.7)	**169**	**10.3**	(8.9,11.9)
Ceredigion	216	78.0	(72.7,82.5)	61	22.0	(17.5,27.3)	-	-	-	-	-	-	40	14.4	(10.8,19.1)	21	7.6	(5.0,11.3)
Pembrokeshire	389	69.8	(65.9,73.5)	168	30.2	(26.5,34.1)	-	-	-	-	-	-	96	17.2	(14.3,20.6)	72	12.9	(10.4,16.0)
Carmarthenshire	590	73.3	(70.1,76.2)	215	26.7	(23.8,29.9)	-	-	-	-	-	-	139	17.3	(14.8,20.0)	76	9.4	(7.6,11.7)
ABM UHB	**1,948**	**72.4**	(70.6,74.0)	**744**	**27.6**	(26.0,29.4)	**20**	**0.7**	(0.5,1.1)	**1,928**	**71.6**	(69.9,73.3)	**424**	**15.8**	(14.4,17.2)	**320**	**11.9**	(10.7,13.2)
Swansea	915	73.9	(71.4,76.3)	323	26.1	(23.7,28.6)	-	-	-	-	-	-	188	15.2	(13.3,17.3)	135	10.9	(9.3,12.8)
Neath Port Talbot	523	72.7	(69.4,75.9)	196	27.3	(24.1,30.6)	-	-	-	-	-	-	109	15.2	(12.7,18.0)	87	12.1	(9.9,14.7)
Bridgend	510	69.4	(66.0,72.6)	225	30.6	(27.4,34.0)	-	-	-	-	-	-	127	17.3	(14.7,20.2)	98	13.3	(11.1,16.0)
Cardiff and Vale UHB	**1,965**	**75.5**	(73.8,77.1)	**639**	**24.5**	(22.9,26.2)	**38**	**1.5**	(1.1,2.0)	**1,927**	**74.0**	(72.3,75.7)	**362**	**13.9**	(12.6,15.3)	**277**	**10.6**	(9.5,11.9)
The Vale of Glamorgan	548	78.0	(74.7,80.9)	155	22.0	(19.1,25.3)	-	-	-	-	-	-	95	13.5	(11.2,16.2)	60	8.5	(6.7,10.8)
Cardiff	1,417	74.5	(72.5,76.4)	484	25.5	(23.6,27.5)	-	-	-	-	-	-	267	14.0	(12.6,15.7)	217	11.4	(10.1,12.9)
Cwm Taf UHB	**1,194**	**71.8**	(69.5,73.9)	**470**	**28.2**	(26.1,30.5)	**14**	**0.8**	(0.5,1.4)	**1,180**	**70.9**	(68.7,73.0)	**239**	**14.4**	(12.8,16.1)	**231**	**13.9**	(12.3,15.6)
Rhondda Cynon Taf	955	72.8	(70.3,75.1)	357	27.2	(24.9,29.7)	-	-	-	-	-	-	181	13.8	(12.0,15.8)	176	13.4	(11.7,15.4)
Merthyr Tydfil	239	67.9	(62.8,72.6)	113	32.1	(27.4,37.2)	-	-	-	-	-	-	58	16.5	(13.0,20.7)	55	15.6	(12.2,19.8)
Aneurin Bevan UHB	**2,004**	**73.2**	(71.5,74.8)	**735**	**26.8**	(25.2,28.5)	**11**	**0.4**	(0.2,0.7)	**1,993**	**72.8**	(71.1,74.4)	**408**	**14.9**	(13.6,16.3)	**327**	**11.9**	(10.8,13.2)
Caerphilly	625	69.8	(66.7,72.7)	271	30.2	(27.3,33.3)	-	-	-	-	-	-	155	17.3	(15.0,19.9)	116	12.9	(10.9,15.3)
Blaenau Gwent	292	71.0	(66.5,75.2)	119	29.0	(24.8,33.5)	-	-	-	-	-	-	63	15.3	(12.2,19.1)	56	13.6	(10.6,17.3)
Torfaen	335	75.6	(71.4,79.4)	108	24.4	(20.6,28.6)	-	-	-	-	-	-	59	13.3	(10.5,16.8)	49	11.1	(8.5,14.3)
Monmouthshire	262	78.9	(74.2,83.0)	70	21.1	(17.0,25.8)	-	-	-	-	-	-	42	12.7	(9.5,16.7)	28	8.4	(5.9,11.9)
Newport	490	74.6	(71.1,77.8)	167	25.4	(22.2,28.9)	6	0.9	(0.4,2.0)	484	73.7	(70.2,76.9)	89	13.5	(11.1,16.4)	78	11.9	(9.6,14.6)

†† Produced by Public Health Wales Observatory, using CMP data (NWIS), WIMD (WG). 1 95% confidence interval. - To avoid disclosure small numbers (0-4) and some larger complementary numbers have been suppressed.

Key data from the Child Measurement Programme for Wales, girls◊ aged 4 to 5 years, 2012/2013

Girls	Healthy weight or underweight			Overweight or obese			Underweight			Healthy weight			Overweight not obese			Obese		
	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]	n	%	(95% CI)[1]
Wales	**10,679**	**74.4**	(73.7,75.1)	**3,668**	**25.6**	(24.9,26.3)	**71**	**0.5**	(0.4,0.6)	**10,608**	**73.9**	(73.2,74.7)	**2,033**	**14.2**	(13.6,14.8)	**1,635**	**11.4**	(10.9,11.9)
Least deprived fifth	1,981	79.1	(77.4,80.6)	524	20.9	(19.4,22.6)	13	0.5	(0.3,0.9)	1,968	78.6	(76.9,80.1)	325	13.0	(11.7,14.3)	199	7.9	(6.9,9.1)
Next least deprived	1,866	76.1	(74.4,77.8)	585	23.9	(22.2,25.6)	10	0.4	(0.2,0.7)	1,856	75.7	(74.0,77.4)	320	13.1	(11.8,14.4)	265	10.8	(9.6,12.1)
Middle deprived	2,046	73.9	(72.2,75.5)	723	26.1	(24.5,27.8)	16	0.6	(0.4,0.9)	2,030	73.3	(71.6,74.9)	394	14.2	(13.0,15.6)	329	11.9	(10.7,13.1)
Next most deprived	2,206	73.4	(71.8,75.0)	798	26.6	(25.0,28.2)	15	0.5	(0.3,0.8)	2,191	72.9	(71.3,74.5)	444	14.8	(13.6,16.1)	354	11.8	(10.7,13.0)
Most deprived fifth	2,580	71.3	(69.8,72.8)	1,038	28.7	(27.2,30.2)	17	0.5	(0.3,0.8)	2,563	70.8	(69.3,72.3)	550	15.2	(14.1,16.4)	488	13.5	(12.4,14.6)
Betsi Cadwaladr UHB	**2,379**	**74.3**	(72.8,75.8)	**823**	**25.7**	(24.2,27.2)	**10**	**0.3**	(0.2,0.6)	**2,369**	**74.0**	(72.4,75.5)	**471**	**14.7**	(13.5,16.0)	**352**	**11.0**	(10.0,12.1)
Isle of Anglesey	264	73.7	(68.9,78.0)	94	26.3	(22.0,31.1)	-	-	-	-	-	-	57	15.9	(12.5,20.1)	37	10.3	(7.6,13.9)
Gwynedd	356	72.7	(68.5,76.4)	134	27.3	(23.6,31.5)	-	-	-	-	-	-	72	14.7	(11.8,18.1)	62	12.7	(10.0,15.9)
Conwy	409	76.3	(72.5,79.7)	127	23.7	(20.3,27.5)	-	-	-	-	-	-	80	14.9	(12.2,18.2)	47	8.8	(6.7,11.5)
Denbighshire	318	71.1	(66.8,75.1)	129	28.9	(24.9,33.2)	-	-	-	-	-	-	68	15.2	(12.2,18.8)	61	13.6	(10.8,17.1)
Flintshire	511	75.1	(71.8,78.2)	169	24.9	(21.8,28.2)	-	-	-	-	-	-	100	14.7	(12.2,17.6)	69	10.1	(8.1,12.6)
Wrexham	521	75.4	(72.1,78.5)	170	24.6	(21.5,27.9)	-	-	-	-	-	-	94	13.6	(11.2,16.4)	76	11.0	(8.9,13.6)
Powys THB	**202**	**79.5**	(74.1,84.0)	**52**	**20.5**	(16.0,25.9)	**-**	**-**	-	**-**	**-**	-	**32**	**12.6**	(9.1,17.2)	**20**	**7.9**	(5.2,11.8)
Hywel Dda UHB	**1,257**	**74.2**	(72.1,76.2)	**437**	**25.8**	(23.8,27.9)	-	-	-	-	-	-	**240**	**14.2**	(12.6,15.9)	**197**	**11.6**	(10.2,13.2)
Ceredigion	219	76.8	(71.6,81.4)	66	23.2	(18.6,28.4)	-	-	-	-	-	-	37	13.0	(9.6,17.4)	29	10.2	(7.2,14.2)
Pembrokeshire	426	75.8	(72.1,79.2)	136	24.2	(20.8,27.9)	-	-	-	-	-	-	73	13.0	(10.5,16.0)	63	11.2	(8.9,14.1)
Carmarthenshire	612	72.3	(69.1,75.2)	235	27.7	(24.8,30.9)	-	-	-	-	-	-	130	15.3	(13.1,17.9)	105	12.4	(10.3,14.8)
ABM UHB	**1,878**	**73.8**	(72.0,75.5)	**667**	**26.2**	(24.5,28.0)	**9**	**0.4**	(0.2,0.7)	**1,869**	**73.4**	(71.7,75.1)	**378**	**14.9**	(13.5,16.3)	**289**	**11.4**	(10.2,12.6)
Swansea	925	74.3	(71.8,76.6)	320	25.7	(23.4,28.2)	-	-	-	-	-	-	184	14.8	(12.9,16.9)	136	10.9	(9.3,12.8)
Neath Port Talbot	475	75.2	(71.6,78.4)	157	24.8	(21.6,28.4)	-	-	-	-	-	-	86	13.6	(11.2,16.5)	71	11.2	(9.0,13.9)
Bridgend	478	71.6	(68.0,74.8)	190	28.4	(25.2,32.0)	-	-	-	-	-	-	108	16.2	(13.6,19.2)	82	12.3	(10.0,15.0)
Cardiff and Vale UHB	**1,930**	**77.1**	(75.5,78.7)	**572**	**22.9**	(21.3,24.5)	**19**	**0.8**	(0.5,1.2)	**1,911**	**76.4**	(74.7,78.0)	**323**	**12.9**	(11.7,14.3)	**249**	**10.0**	(8.8,11.2)
The Vale of Glamorgan	518	77.8	(74.5,80.8)	148	22.2	(19.2,25.5)	-	-	-	-	-	-	82	12.3	(10.0,15.0)	66	9.9	(7.9,12.4)
Cardiff	1,412	76.9	(74.9,78.8)	424	23.1	(21.2,25.1)	-	-	-	-	-	-	241	13.1	(11.7,14.7)	183	10.0	(8.7,11.4)
Cwm Taf UHB	**1,101**	**69.8**	(67.5,72.0)	**476**	**30.2**	(28.0,32.5)	**7**	**0.4**	(0.2,0.9)	**1,094**	**69.4**	(67.1,71.6)	**255**	**16.2**	(14.4,18.1)	**221**	**14.0**	(12.4,15.8)
Rhondda Cynon Taf	909	71.2	(68.6,73.6)	368	28.8	(26.4,31.4)	-	-	-	-	-	-	199	15.6	(13.7,17.7)	169	13.2	(11.5,15.2)
Merthyr Tydfil	192	64.0	(58.4,69.2)	108	36.0	(30.8,41.6)	-	-	-	-	-	-	56	18.7	(14.7,23.5)	52	17.3	(13.5,22.0)
Aneurin Bevan UHB	**1,932**	**75.1**	(73.4,76.7)	**641**	**24.9**	(23.3,26.6)	**19**	**0.7**	(0.5,1.2)	**1,913**	**74.3**	(72.6,76.0)	**334**	**13.0**	(11.7,14.3)	**307**	**11.9**	(10.7,13.2)
Caerphilly	624	73.4	(70.3,76.3)	226	26.6	(23.7,29.7)	-	-	-	-	-	-	107	12.6	(10.5,15.0)	119	14.0	(11.8,16.5)
Blaenau Gwent	263	72.7	(67.8,77.0)	99	27.3	(23.0,32.2)	-	-	-	-	-	-	51	14.1	(10.9,18.1)	48	13.3	(10.1,17.1)
Torfaen	317	75.8	(71.5,79.7)	101	24.2	(20.3,28.5)	-	-	-	-	-	-	55	13.2	(10.3,16.7)	46	11.0	(8.4,14.4)
Monmouthshire	256	80.0	(75.3,84.0)	64	20.0	(16.0,24.7)	-	-	-	-	-	-	43	13.4	(10.1,17.6)	21	6.6	(4.3,9.8)
Newport	472	75.8	(72.2,79.0)	151	24.2	(21.0,27.8)	5	0.8	(0.3,1.9)	467	75.0	(71.4,78.2)	78	12.5	(10.1,15.4)	73	11.7	(9.4,14.5)

◊ Produced by Public Health Wales Observatory, using CMP data (NWIS), WIMD (WG). 1 95% confidence interval. - To avoid disclosure small numbers (0-4) and some larger complementary numbers have been suppressed.

Height data[§§] from the Child Measurement Programme for Wales, children aged 4 to 5 years, 2012/2013

	All				Boys				Girls			
	Measured	Low height			Measured	Low height			Measured	Low height		
	N	n	%	(95% CI)[1]	N	n	%	(95% CI)[1]	N	n	%	(95% CI)[1]
Wales	**29,238**	**137**	**0.5**	(0.4,0.6)	**14,891**	**78**	**0.5**	(0.4,0.7)	**14,347**	**59**	**0.4**	(0.3,0.5)
Least deprived fifth	5,088	16	0.3	(0.2,0.5)	2,583	10	0.4	(0.2,0.7)	2,505	6	0.2	(0.1,0.5)
Next least deprived	4,989	21	0.4	(0.3,0.6)	2,538	13	0.5	(0.3,0.9)	2,451	8	0.3	(0.2,0.6)
Middle deprived	5,637	25	0.4	(0.3,0.7)	2,868	13	0.5	(0.3,0.8)	2,769	12	0.4	(0.2,0.8)
Next most deprived	6,071	23	0.4	(0.3,0.6)	3,067	11	0.4	(0.2,0.6)	3,004	12	0.4	(0.2,0.7)
Most deprived fifth	7,453	52	0.7	(0.5,0.9)	3,835	31	0.8	(0.6,1.1)	3,618	21	0.6	(0.4,0.9)
Betsi Cadwaladr UHB	**6,475**	**32**	**0.5**	(0.4,0.7)	**3,273**	**15**	**0.5**	(0.3,0.8)	**3,202**	**17**	**0.5**	(0.3,0.8)
Isle of Anglesey	690	-	-	-	332	-	-	-	358	-	-	-
Gwynedd	1,006	-	-	-	516	-	-	-	490	-	-	-
Conwy	1,067	-	-	-	531	-	-	-	536	-	-	-
Denbighshire	928	10	1.1	(0.6,2.0)	481	-	-	-	447	-	-	-
Flintshire	1,413	6	0.4	(0.2,0.9)	733	-	-	-	680	-	-	-
Wrexham	1,371	6	0.4	(0.2,1.0)	680	-	-	-	691	-	-	-
Powys THB	**534**	-	-	-	**280**	-	-	-	**254**	-	-	-
Hywel Dda UHB	**3,333**	**21**	**0.6**	(0.4,1.0)	**1,639**	**16**	**1.0**	(0.6,1.6)	**1,694**	**5**	**0.3**	(0.1,0.7)
Ceredigion	562	-	-	-	277	-	-	-	285	-	-	-
Pembrokeshire	1,119	-	-	-	557	-	-	-	562	-	-	-
Carmarthenshire	1,652	12	0.7	(0.4,1.3)	805	-	-	-	847	-	-	-
ABM UHB	**5,237**	**-**	**-**	-	**2,692**	**-**	**-**	-	**2,545**	**-**	**-**	-
Swansea	2,483	5	0.2	(0.1,0.5)	1,238	-	-	-	1,245	-	-	-
Neath Port Talbot	1,351	6	0.4	(0.2,1.0)	719	-	-	-	632	-	-	-
Bridgend	1,403	-	-	-	735	-	-	-	668	-	-	-
Cardiff and Vale UHB	**5,106**	**24**	**0.5**	(0.3,0.7)	**2,604**	**15**	**0.6**	(0.3,0.9)	**2,502**	**9**	**0.4**	(0.2,0.7)
The Vale of Glamorgan	1,369	-	-	-	703	-	-	-	666	-	-	-
Cardiff	3,737	-	-	-	1,901	-	-	-	1,836	-	-	-
Cwm Taf UHB	**3,241**	**21**	**0.6**	(0.4,1.0)	**1,664**	**14**	**0.8**	(0.5,1.4)	**1,577**	**7**	**0.4**	(0.2,0.9)
Rhondda Cynon Taf	2,589	16	0.6	(0.4,1.0)	1,312	-	-	-	1,277	-	-	-
Merthyr Tydfil	652	5	0.8	(0.3,1.8)	352	-	-	-	300	-	-	-
Aneurin Bevan UHB	**5,312**	**23**	**0.4**	(0.3,0.6)	**2,739**	**13**	**0.5**	(0.3,0.8)	**2,573**	**10**	**0.4**	(0.2,0.7)
Caerphilly	1,746	10	0.6	(0.3,1.1)	896	5	0.6	(0.2,1.3)	850	5	0.6	(0.3,1.4)
Blaenau Gwent	773	-	-	-	411	-	-	-	362	-	-	-
Torfaen	861	-	-	-	443	-	-	-	418	-	-	-
Monmouthshire	652	-	-	-	332	-	-	-	320	-	-	-
Newport	1,280	7	0.5	(0.3,1.1)	657	-	-	-	623	-	-	-

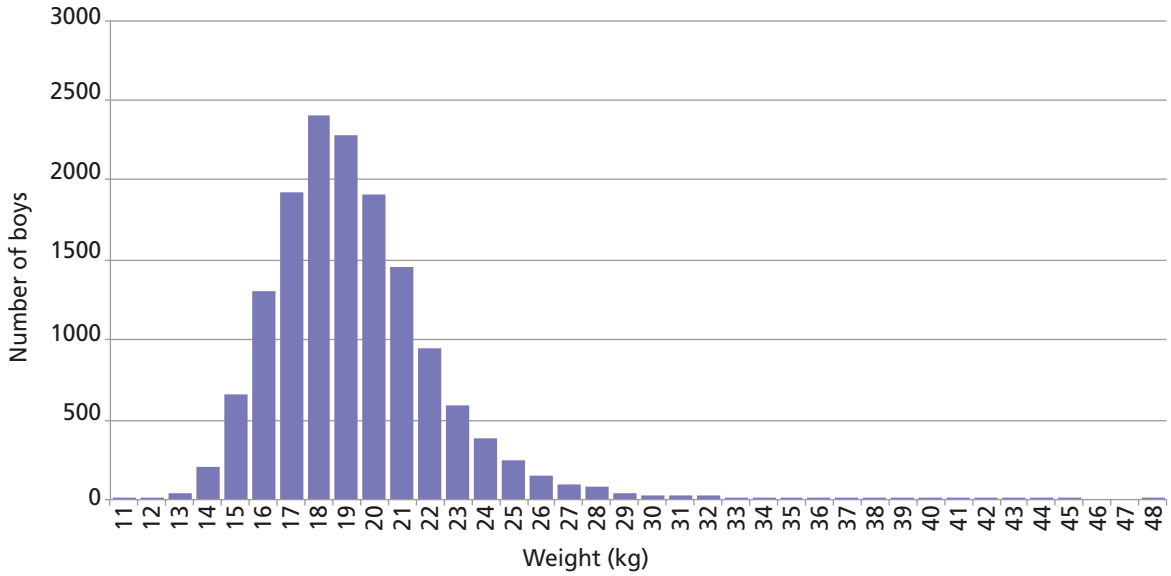
§§ Produced by Public Health Wales Observatory, using CMP data (NWIS), WIMD (WG). - To avoid disclosure small numbers (0-4) and some larger complementary numbers have been suppressed.

Appendix 4

Distribution of height, weight and body mass index

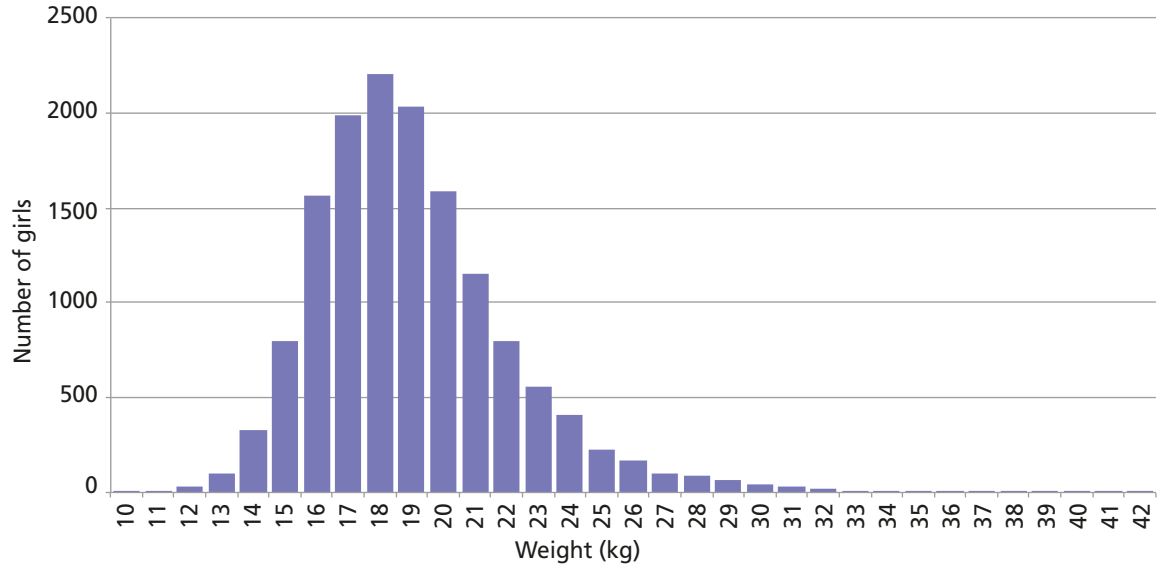
Distribution of weight and BMI in both boys and girls in the Child Measurement Programme is skewed to the right. Distribution of height shows a symmetrical pattern in boys and girls.

Weight distribution (kg) in boys aged 4 to 5 years, Child Measurement Programme, 2012/13



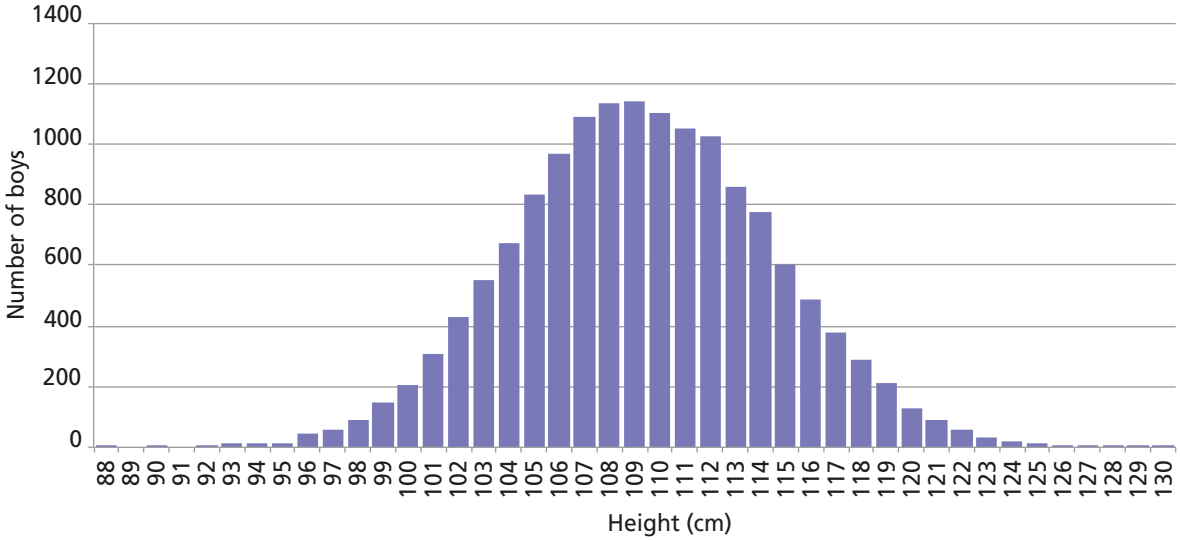
Produced by Public Health Wales Observatory, using CMP data (NWIS)

Weight distribution (kg) in girls aged 4 to 5 years, Child Measurement Programme, 2012/13



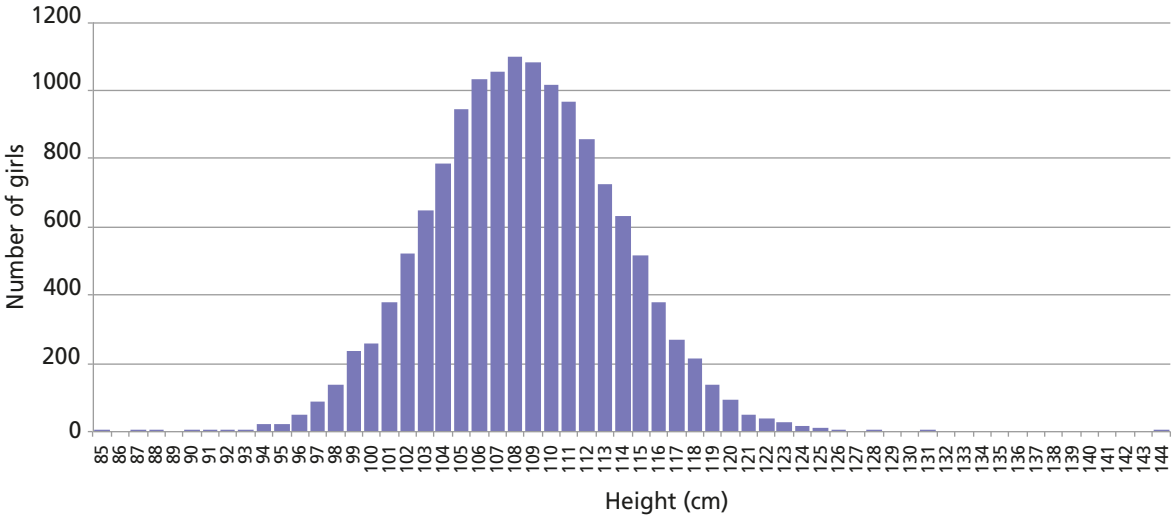
Produced by Public Health Wales Observatory, using CMP data (NWIS)

Height distribution (cm) in boys aged 4 to 5 years, Child Measurement Programme, 2012/13



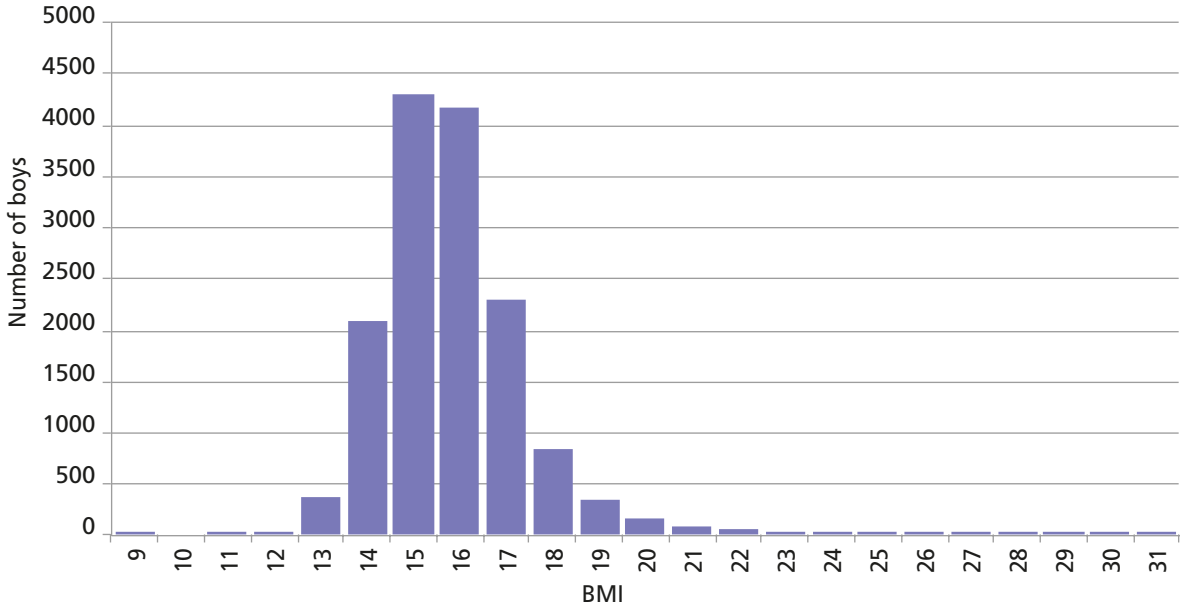
Produced by Public Health Wales Observatory, using CMP data (NWIS)

Height distribution (cm) in girls aged 4 to 5 years, Child Measurement Programme, 2012/13



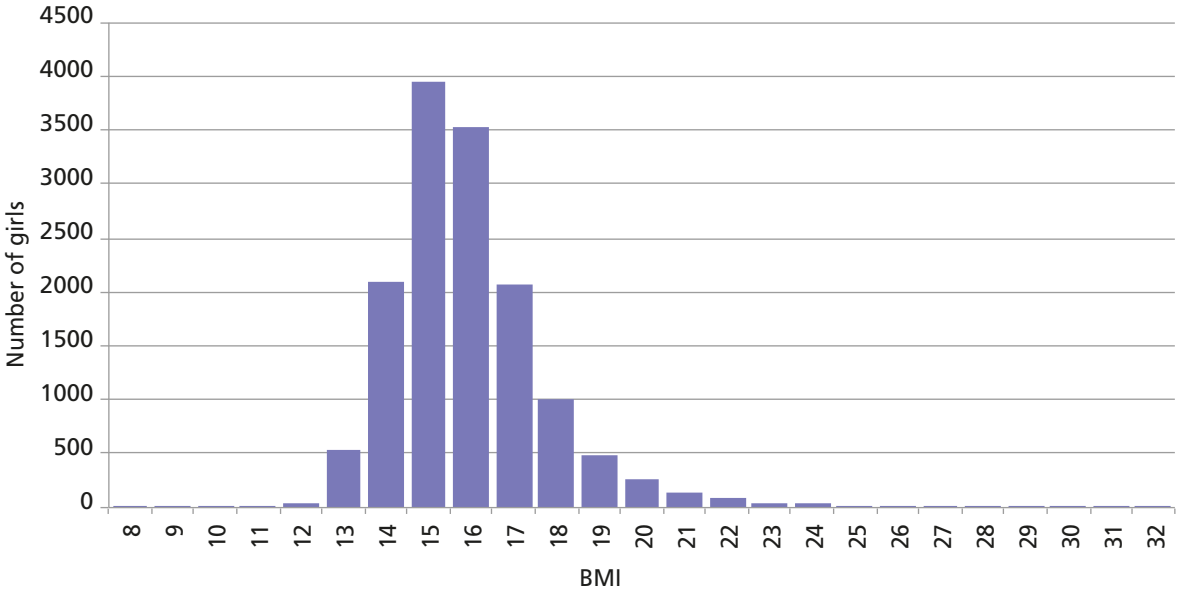
Produced by Public Health Wales Observatory, using CMP data (NWIS)

Body mass index (BMI) distribution in boys aged 4 to 5 years, Child Measurement Programme, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

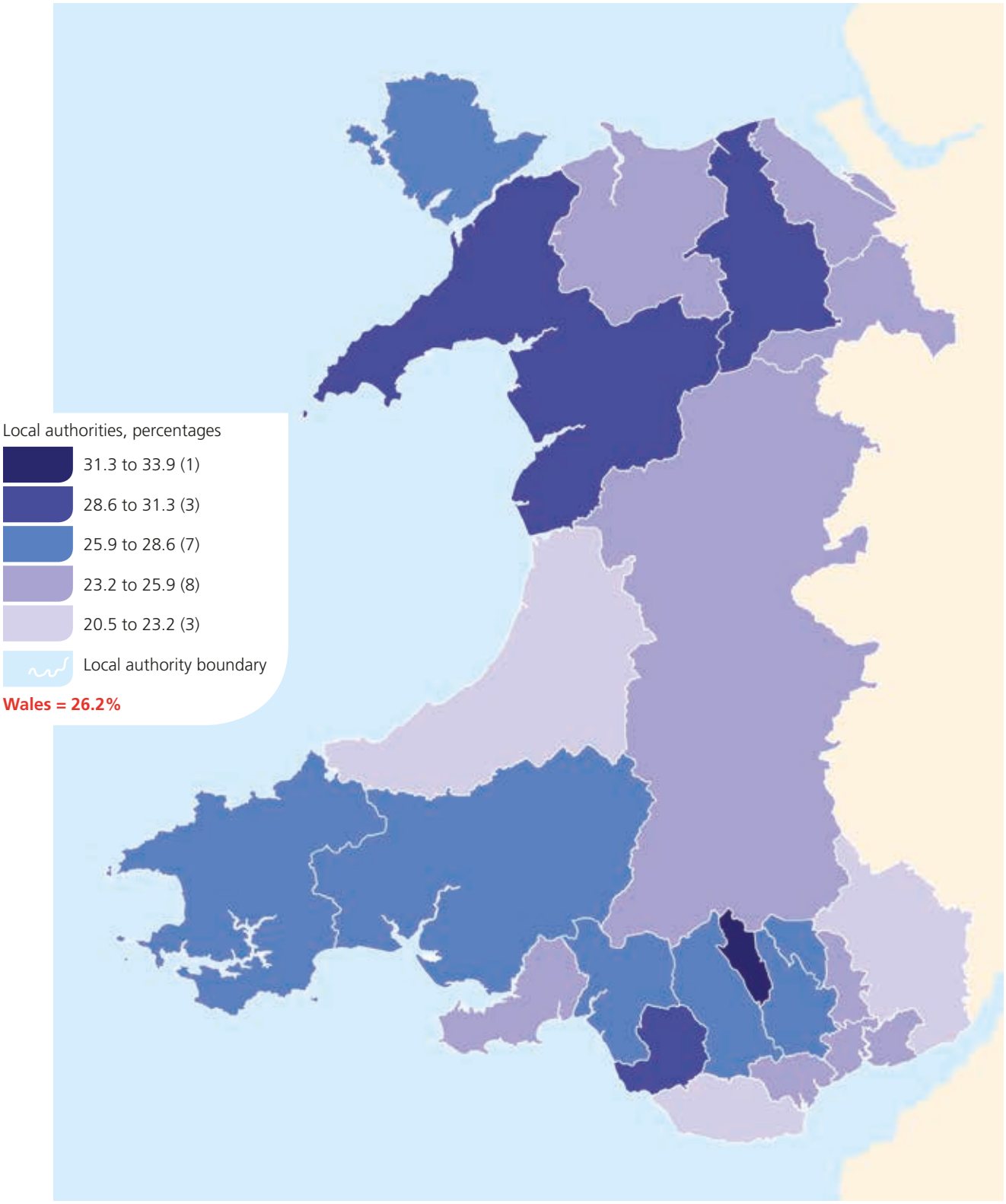
Body mass index (BMI) distribution in girls aged 4 to 5 years, Child Measurement Programme, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

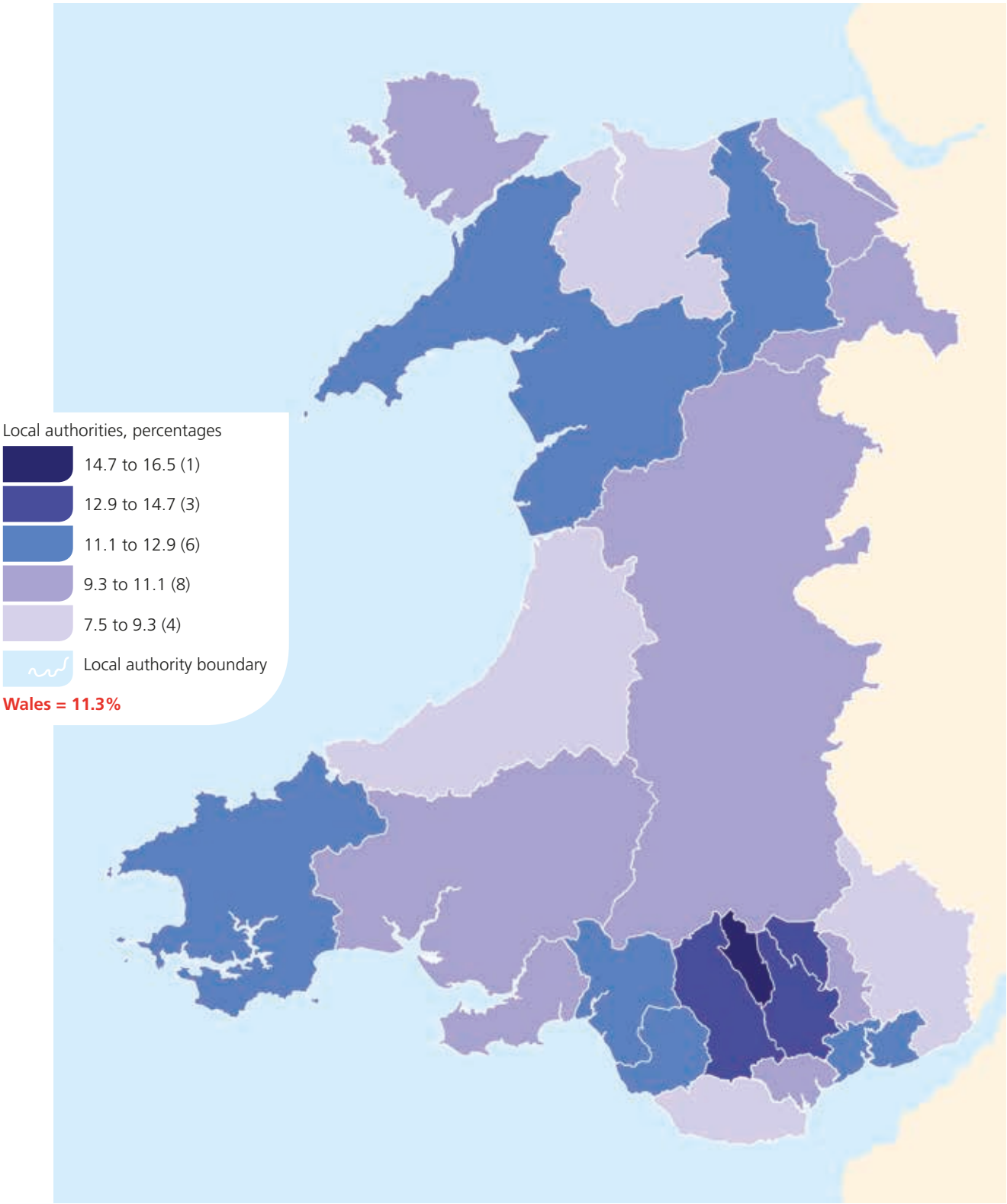
Appendix 5 Additional maps

Proportion of children aged 4 to 5 years who are overweight or obese, 2012/13



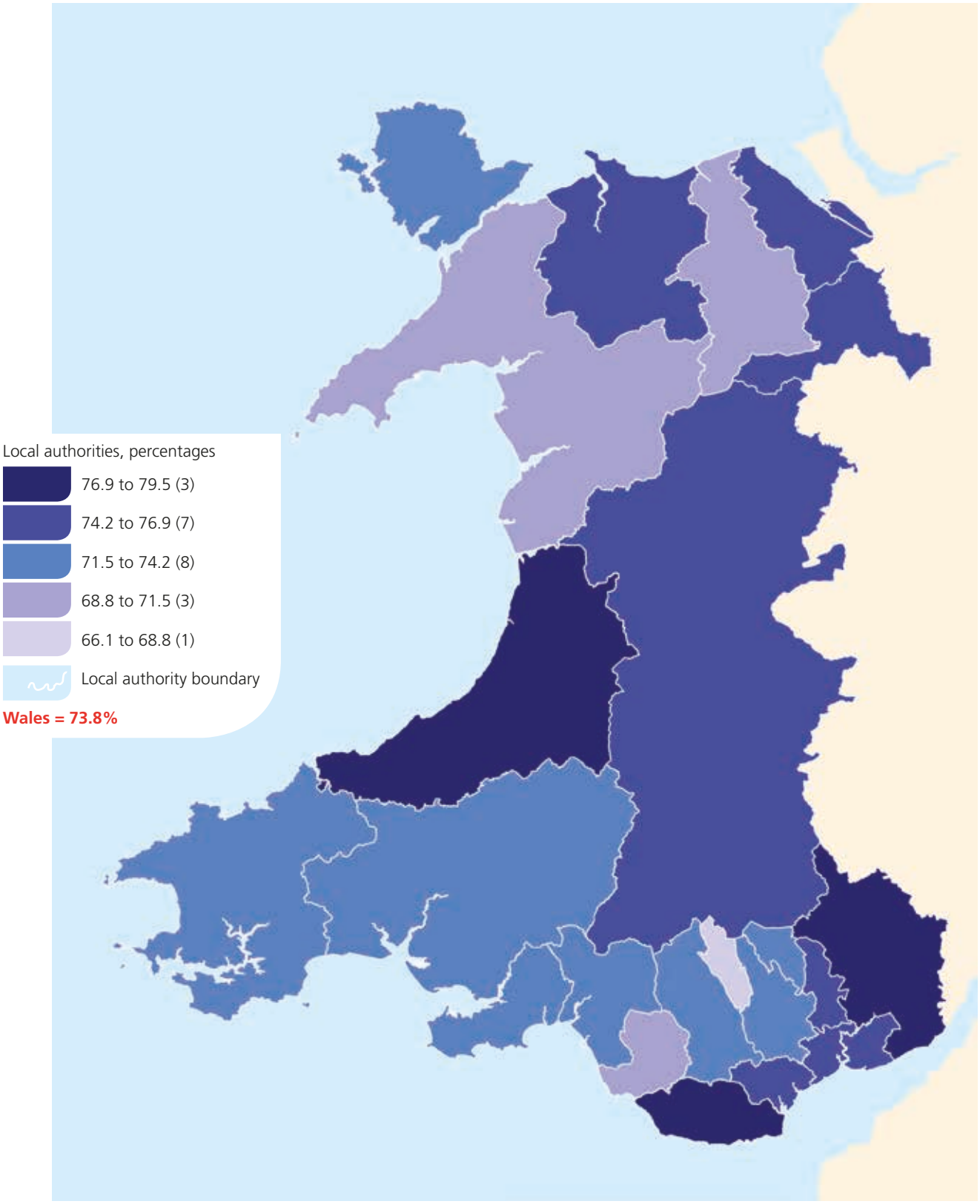
Produced by Public Health Wales Observatory, using CMP data (NWIS)

Proportion of children aged 4 to 5 years who are obese, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

Proportion of children aged 4 to 5 years who are underweight or a healthy weight, 2012/13



Produced by Public Health Wales Observatory, using CMP data (NWIS)

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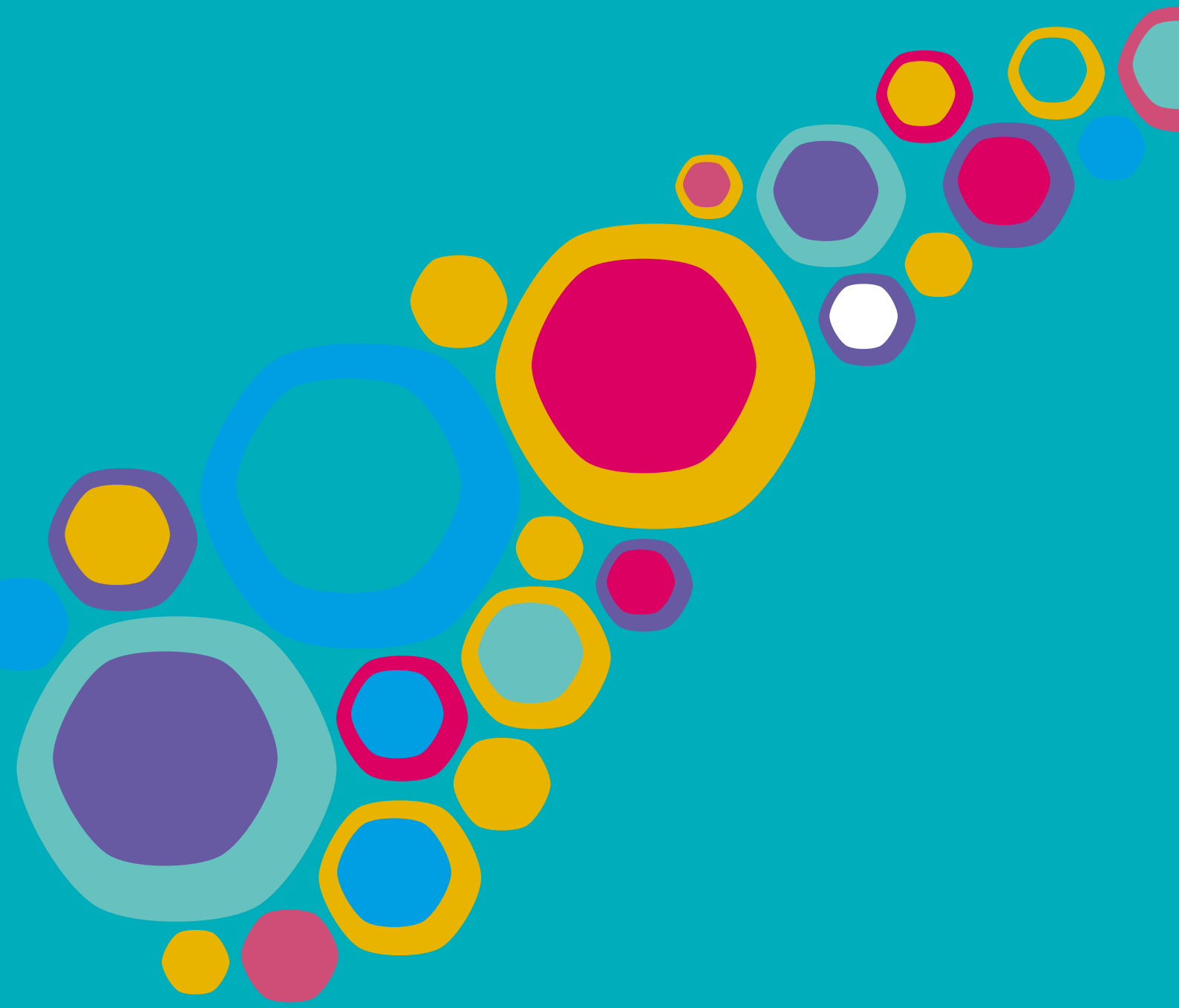

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