Chapter 3: Early years

3.1 Healthy weight when starting school

Proportion of children at a healthy weight during their first year of primary school

Key messages

- Weight status at the commencement of primary school is an important predictor of health outcomes later in life.

- Across England, Scotland and Wales more than one in five children during their first year of primary school are overweight or obese.

- There has been minimal overall improvement in the proportion of children at a healthy weight in the past decade in any country.

- Children living in the most deprived areas are much more likely to be overweight or obese compared to children in the least deprived areas.

- The promotion of healthy weight in children requires a range of interventions to both reduce the obesogenic environment and target critical periods in the life course.

What is this indicator showing us?

This indicator shows us the proportion of children who are a healthy weight, underweight, overweight and obese during their first year of primary school, using cut-offs based upon the Body Mass Index (BMI) as a measure of weight for height relative to sex and age.

Data availability and comparability

Data on children’s weight at school entry are available in England, Wales and Scotland. In England and Wales the height and weight of children are measured between 4.0 to 5.5 years through the National Child Measurement Programme England, and the Child Measurement Programme for Wales. In Scotland children are measured between 4.5 and 6.25 years as part of a universal Child Health Programme (see additional data note).

Proportion of children at a healthy weight when starting school in England, Wales and Scotland

England

![Graph showing the proportion of children at a healthy weight, underweight, overweight or obese in England, 2006/2007 to 2015/2016]

Latest data: In 2015/2016, 77% of children at school entry in England were within the healthy weight BMI centile.

Trend: Since the National Child Measurement Programme began, there has been little improvement in the number of children at a healthy weight in England.

Source: National Child Measurement Programme, England
Wales

Latest data: In 2013/2014, 73% of children at school entry in Wales were within the healthy weight BMI centile.

Trend: Since the Child Measurement Programme began, there has been little improvement in the number of children at a healthy weight in Wales.

Source: Child Measurement Programme for Wales.

Scotland

Latest data: In 2014/2015, 77% of children at school entry in Scotland were within the healthy weight BMI centile.

Trend: Since the Child Health Programme began, there has been little improvement in the number of children at a healthy weight in Scotland.

Source: Child Health Programme, Scotland.
Spotlight on inequalities

Data from England, Wales and Scotland illustrate the very strong relationship between deprivation and overweight/obesity prevalence. As deprivation increases the number of children at a healthy weight decreases, and the number of children measured as overweight or obese increases.

The most recent data show that overweight and obesity prevalence for children living in the most deprived areas is greater than it is for those living in the least deprived areas: in England, 25.8% compared to 18.0%; in Scotland, 25.1% compared to 17.1%; and in Wales, 28.5% compared to 22.2%. This pattern is in contrast to the early 1970s where obesity prevalence was greater in children from the most affluent areas than in the most deprived.

Of most concern, in England it appears that overweight and obesity may be reducing over time in the least deprived but not amongst the most deprived.

Figure 3.1.4: Trends in proportions of overweight and obesity for England and Scotland by deprivation quintile 2010/2011 to 2014/2015 or 2015/2016

Why is this indicator important?

The childhood obesity epidemic presents one of the greatest health threats both to children and their future and the UK’s future. This threat is now universal across all countries, rich and poor.

Weight status in early childhood is an important predictor of overweight and obesity in later life and of health and mortality risk across the life-course. Overweight also has a major impact on health and wellbeing in childhood.

Being overweight or obese during childhood can:

- lead to an increased risk of a host of conditions including Type 2 diabetes, high blood pressure, cardiovascular disease and bowel cancer
- negatively impact educational attainment
• lead to low self-esteem and negative body image, and limit the ability to take part in physical activity
• increase visits to GP

Assessing weight status in early childhood is an essential part of a coordinated approach to childhood obesity prevention, and for individuals it is key to taking action to help children stay on or return to a healthy weight across their life. Recognition is a problem – it is estimated that a third of parents in England are unable to recognise that their children are overweight107.

Where are we now in the UK?

In 2015/2016 around 77%, or just over three in four children, were within the healthy weight category during their first year of primary school in England and Scotland. In Wales, the proportion was slightly lower at 73%.

Across all three nations, more than one in five children during their first year of primary school were overweight or obese, with Wales having the highest proportion of children assessed as overweight or obese.

The proportion of children at a healthy weight, underweight, and overweight and obese has not changed substantially over the past five to 10 years, although rates of children who are overweight are still higher than those recorded in 1994108. This is in contrast to the gradual increase in the proportion of overweight and obese 5 and 6-year-olds living in Scotland from the mid-1970s until 2000109.

The WHO Report on Ending Childhood Obesity 2016 emphasised the need for coordinated cross-sectorial action and a strong focus on actions in pregnancy and early life102. A full set of policy recommendations is set out in the RCPCH 2015 report Tackling England’s Childhood Obesity Crisis110.

The recent announcement to introduce a sugar levy in the UK is welcomed. However, we must ensure that this new tax is robustly evaluated and, if successful, consideration should be given to extending this levy to other sugar-sweetened products.

The government in England has recently introduced a Childhood Obesity Plan. Whilst disappointing in its reach, it is one of the few international cross-government strategies to specifically and strategically address childhood obesity. Robust evidence-based childhood obesity strategies are needed across all countries, involving government departments and including rigorous evaluation.

Additionally, we must ensure that children who have significant obesity have timely access to evidence-based weight-management services.

95th centile when the UK growth reference was devised. Reductions in underweight should also be a target.

Although the relative plateau of obesity across most countries is welcome, it is not enough.

How can we improve?

The causes of obesity in childhood are multi-faceted, with contributions from multiple aspects of environmental change (leading to the so-called ‘obesogenic’ modern environment) together with genetic and likely epigenic factors. There is therefore no single intervention or policy approach that can be implemented to deal with the issue.

When implementing initiatives it is important to consider the multitude of stakeholders involved, including parents, children, businesses and civil society actors, in addition to government109. It is also important to consider the social and cultural context of childhood obesity and, in particular, address the growing inequality in childhood obesity.

“Many young people don't realise how fun sport can be.”

RCPCH & Us Voice Bank 2016

What does good look like?

Childhood obesity is very largely preventable. Therefore, we should aim for a decrease in the proportion of children who are overweight or obese across all countries. A logical target is 5%, the expected prevalence of obesity arising from the definition of obesity as BMI at or over the
Key actions

- Enact cross-government childhood obesity strategies across all countries, including rigorous evaluation and quality improvement plans.

- Robust evaluation to monitor the effectiveness of the proposed sugar levy and other sugar-reduction initiatives on sugar-sweetened beverages in all countries.

- Expand nutritional standards to all schools. Make school-based health education a statutory subject in all schools, with schools focusing on the importance of both physical activity and nutrition.

- Introduce a ban across the UK on the advertising of foods high in saturated fats, sugar and salt before 9pm, and evaluate the impact of online food marketing on children.

- Extend the reach and effectiveness of universal measurement programmes in different countries to include an increase in the number of measurement points and longitudinal tracking of children, starting much earlier in childhood. There should be sharing of data with general practitioners, school nurses and parents. Introduce Year 6 and P6 cohorts in child measurement programmes in Scotland, Wales and Northern Ireland.

- Support a research environment that enables sustained, long-term expansion of basic science and applied research to identify the causes of obesity and effective interventions to tackle it.

- Ensure that overweight and obese children have timely access and support to attend evidence-based programmes, via prescriptions or referrals by their GP.

- Ensure children with significant underweight have timely access to specialist child health services.

Additional data note

BMI is calculated as weight divided by height squared (kg/m²) and is a measure of weight independent of height. Assessing BMI in children is more complicated than in adults, because children’s BMI will change as they grow and mature. BMI centiles are therefore used to measure how far a child’s BMI is above or below the average BMI value for their age and sex, and usually categorised as healthy weight, overweight, obese or underweight. Categories based upon BMI centiles are calculated for surveillance purposes as follows:

- **Underweight**: a BMI centile less than or equal to the 2nd centile
- **Healthy weight**: a BMI centile greater than the 2nd centile but less than the 85th centile
- **Overweight**: a BMI centile greater than or equal to the 85th centile but less than the 95th centile (i.e. overweight but not obese)*
- **Obese**: a BMI centile greater than or equal to the 95th centile

There is variation in the age of children when they are measured. For example, in Scotland a child’s age at measurement ranges from around 4.5 to 6.25 years, whereas in England it ranges from 4.5 years to 5.5 years. As resulting BMI centiles are adjusted for age, this variation has a negligible impact on the BMI distribution rates reported. However, data have been displayed separately for each nation.

Data are collected as part of the Health Survey Northern Ireland but are aggregated for ages two to 10 years and therefore are not comparable.
Chapter 3: Early years

3.2 Healthy teeth and gums

Proportion of children with no obvious tooth decay at age five

Key messages

- Good oral health is essential for children’s overall health and wellbeing.

- Despite tooth decay being almost entirely preventable, 31 to 41% of 5-year-old children across the UK have evidence of tooth decay, with rates higher for those in deprived populations.

- Tooth decay is the most common single reason why children aged five to nine require admission to hospital.

- Good oral hygiene and reduced sugar consumption, coupled with access to timely primary dental care, are important for reducing tooth decay in children.

What is this indicator showing us?

This indicator shows the proportion of 5-year-olds with no obvious tooth decay (also known as dental caries) in their primary (baby or milk) teeth.

Data availability and comparability

Comparable data for England, Northern Ireland and Wales are collected as part of the Children’s Dental Health Survey, a representative sample of children aged five, eight, 12 and 15 years who undergo a dental examination every 10 years. Data presented for Scotland are taken from the National Dental Inspection Programme, a universal biennial dental examination of children during their first and final years of primary school (see additional data note). The latest data show a positive trend in oral health across all four nations, with the most noticeable improvements in Scotland and Northern Ireland.

Health teeth and gum rates for England, Northern Ireland, Scotland and Wales

Figure 3.2.1: Proportion of children aged five years with no obvious tooth decay in their primary teeth, 1983 to 2013

Latest data: The proportion of 5-year-old children with no obvious tooth decay in 2013 was 69% in England, 68% in Scotland, 60% in Northern Ireland and 59% in Wales.

Trend: Since the early 1990s there has been an increase in the proportion of 5-year-olds with no obvious tooth decay across all four nations. Improved oral health since 2003 has been most noticeable in Scotland (23% increase) and Northern Ireland (21%).

Source: Children’s Dental Health Survey for England, Northern Ireland and Wales and the National Dental Inspection Programme for Scotland (see additional data note).
Spotlight on inequalities

Tooth decay remains a significant public health issue, particularly for deprived populations where children are less likely to have good oral hygiene practices and more likely to have high sugar diets; these risks are often coupled with poorer access to dental care. Figure 2 shows that 5-year-olds living in the most deprived areas of England, Northern Ireland and Wales were at least three times more likely to experience severe tooth decay than their peers living in the most affluent areas.

Data from Scotland also show a similar trend. In 2014, 53% of 4- to 5-year-old children in the most deprived quintile showed no obvious decay, compared with 83% in the least deprived quintile.

In England, in 2015, around 32% of 5-year-olds living in the most deprived local authorities had tooth decay compared to around 18% living in the least deprived local authorities.

Figure 3.2.2: Proportion of 5-year-olds with severe or extensive tooth decay by deprivation quintile (fifth of population) in 2013 for England, Wales and Northern Ireland

Why is this indicator important?

Poor oral health can have a major impact on a child’s physical health and their quality of life. Poor oral health and tooth decay in early childhood can lead to a series of health problems, including:

- pain;
- infections;
- altered sleep and eating patterns;
- school absence; and
- need for dental extraction (with the potential for subsequent dental problems later in life).

Tooth decay occurs when mouth bacteria produce acids which soften the outer covering (enamel) of the tooth. Research suggests that development of these bacteria may be compensated in part by good oral hygiene practices and diet. Sugar has been found to be an important factor in the development of tooth decay, as it can fuel the acid formation by oral bacteria.

Whilst this indicator specifically looks at 5-year-olds, good oral health is important for children of all ages.
Where are we now in the UK?

Over the past few decades dental health across the UK has improved considerably, due to increased awareness of oral hygiene practices and the availability of fluoride.

Across the four nations around three in five children now have no obvious tooth decay. Since 2003, the rate of improved oral health in children has been most noticeable in Scotland (23%) and Northern Ireland (21%).

Further, in comparison with other European countries, England (along with Finland, Denmark and Germany) has the lowest decayed, missing or filled teeth (DMFT) scores for 12-year-olds, according to data from the WHO Oral Health Database. As there are variations in data collection methodologies across Europe, caution must be taken when making international comparisons.

Despite these improvements, tooth decay remains the most common single reason that children aged five to nine require admission to hospital, in many cases requiring general anaesthetic for tooth exaction.

What does good look like?

Tooth decay is almost entirely preventable. We should expect to see a steady increase in the number of children with no tooth decay at age five across the UK, with an ultimate aim of eradicating tooth decay in almost all children.

How can we improve?

Promoting improved oral health in children requires action at a national, local and individual level, and should be evidence-based and standardised.

Families need to be equipped from birth with the knowledge to enable good oral hygiene and encouraged to maintain regular brushing. All children should receive their first check up as soon as their first teeth come through and by their first birthday (Dental Check by One), and this should be recorded in their Personal Child Health Record. Paediatricians should include oral health in assessment of children’s all-round health.

Reduction in consumption of high-sugar foods, particularly drinks, is key; national actions to reduce sugar in children’s food should be accompanied by education of children and parents in reducing and replacing high-sugar foods and drinks.

Children need timely access to both primary and specialist dental care to reduce the likelihood of serious complications following early tooth decay.

Fluoridation of public water supplies also requires consideration as an effective public health measure which has been shown to also reduce health inequalities.

Key actions

- Ongoing development, implementation and evaluation of national oral health programmes for children and young people across the UK, building on existing initiatives, including Childsmile (Scotland) and Designed to Smile (Wales).
- All children in the UK should receive their first check-up as soon as their first teeth come through, and by their first birthday, and have timely access to dental services for preventative advice and early diagnosis of dental caries, with targeted access for vulnerable groups.
- Fluoridation of public water supplies, particularly in areas where there is a high prevalence of tooth decay.

Additional data note

The Children’s Dental Health Survey collective sample size for children aged five in England, Northern Ireland and Wales for the 2013 inspection was 2,549.

The Scottish National Dental Inspection Programme captures data following universal biennial dental examinations of children during their first and final years of primary school. The sample size for Primary 1 children (4 to 5 years) for the 2014 inspection was 16,251.

Data for Scotland are not directly comparable with the other three nations. However, the Scottish data have been interpolated to correspond with the Children’s Dental Health Survey (e.g. data for 1992 and 1994 have been averaged to produce a figure for 1993).

In all cases, except for the data from the Children’s Dental Health Survey in 2013, the proportion of children with healthy teeth was calculated by subtracting the proportion of children with tooth decay from the total population.
Chapter 3: Early years

3.3 Hospital admissions due to non-intentional injury

Rate of hospital admissions for non-intentional injuries in children under 5 years

Key messages

- In 2014/2015 there were 45,168 non-intentional injury-related hospital admissions across England, Scotland and Wales for children under five years.

- Injuries are non-random, preventable events. Yet non-intentional injuries remain a major cause of ill health and serious disability in children that require continued focus on safety improvements.

- Around 72% of non-intentional injuries in children occur in the home.

- Injury reductions can be achieved at low cost, particularly through parent education and local coordination.

What is this indicator showing us?

This indicator shows the rate of children (one to four years in England and Wales, and 0 to four years in Scotland) who have been admitted to hospital for non-intentional injury and the top three causes of admission by injury type per 1,000. Note that this excludes road transport injury admissions.

Data availability and comparability

In England, Scotland and Wales, hospital admissions due to non-intentional injury are recorded by diagnostic codes relating to the cause of the patient’s emergency hospital attendance between 2012 and 2015 (for children up to four years). Note that data for Scotland do not include infants younger than one year. Data are also collected by the Royal Society for the Prevention of Accidents, and the Royal College of Emergency Medicine.

Hospital admission rates due to non-intentional injuries in children under 5 years in England, Scotland and Wales

![Hospital admission rates due to non-intentional injuries in children under 5 years in England, Scotland and Wales](image)

Figure 3.3.1: Children (<4 years) admitted to hospital for non-intentional injury by country per 1,000 population 2012/2013 to 2014/2015

Latest data: The number of children who were admitted to hospital due to non-intentional injury in 2014/2015 was 18 per 1,000 in England, 14 per 1,000 in Wales, and 11 per 1,000 population in Scotland.

Trend: During the last three years across the three nations, the number of non-intentional injuries per 1,000 population has been essentially unchanged, with a slight increase in admissions in Scotland, and a decrease in England and Wales.

Source: Hospital Episode Statistics (HES) for England[55-57], Patient Episode Database for Wales and NHS Wales Informatics Service (PEDW)[58], and ISD for Scotland[59-61] and Population Estimates (ONS)[62].
Figure 3.3.2: Top three total hospital admissions by non-intentional injury type in children (<5 years) in England, Scotland and Wales, 2014/2015

Latest data: In 2014/2015 the most common injury type was recorded as ‘foreign body’ in England and Wales, and ‘falls’ in Scotland. The difference in cause patterns between countries may reflect differences in coding of cause of admission.

Source: Hospital Episode Statistics (HES) for England135-137, Patient Episode Database for Wales and NHS Wales Informatics Service (PEDW)138, and ISD for Scotland139-141.

Why is this indicator important?

Injuries are not ‘accidents’ but are non-random events that are preventable through action at family, local and national levels. The impact of severe injuries on children and families can be immense.

Non-intentional injuries make up around 1–2% of hospital admissions for children (<5 years) in England, Wales and Scotland and are one of the leading causes of ill health, serious disability and even death in this age group142. The great majority (72%) of non-intentional injuries occur in and around the home in this age group, emphasising the need for a focus on home safety improvement.

Safety recommendations may also help reduce the cost burden on the NHS. The estimated wider costs associated with a serious accident at home in a young child are around £33,000, a potentially avoidable burden on the NHS and society142.

Inequality in risk of injury is stark. One study suggested that the most deprived have 13 times the risk of death due to injury compared to the most affluent in society, highlighting the need for action to target inequalities143.

Where are we now in the UK?

In 2014/2015 there were 45,168 non-intentional injury-related hospital admissions in England, Scotland and Wales. Unintentional injuries accounted for approximately one in eight emergency hospital admissions for children in Scotland in that year.

The main reasons for admission across countries were:

- foreign body entering into or through the eye or other natural orifice
- falls
- being caught, crushed or jammed between objects
- poisoning

During the past three years the number of hospital admissions related to injury has been steady across the three countries. However, as shown in Figure 3.3.1, Scotland saw a slight increase in 2014/2015. Note that differences between the countries may reflect differences in coding of injuries or in policies on admission as much as real differences in injury rates. In comparison to other European countries the UK nations scored in the middle of the pack for 0 to 19-year-olds across 115 safety indicators in 2012,
with England and Scotland above average and
Wales just below144.

What does good look like?

Non-intentional injuries are almost entirely preventable. The variation in injury rates by level of deprivation shows us that an achievable target is to reduce injury rates across the population to that of the most affluent groups.

In addition to reduction in injury and suffering for families, reduction of injury attendances at A&E and hospital admissions will provide significant cost savings to the NHS142. Targeted information in the form of education and safety equipment, particularly for vulnerable families, has shown positive results at a local scale94.

How can we improve?

Injury prevention is everyone’s business, and injury reductions can be achieved at low cost142. Actions are needed at local authority, neighbourhood and family levels.

Local authorities have a responsibility to provide strategic leadership for injury prevention, bringing together a very wide range of services from diverse sectors including health, education, social care, housing and emergency services142.

Health, education and social care early years professionals need training to prevent injuries in early years’ settings and to educate and support parents in injury prevention. Parenting interventions are effective in improving home safety and reducing injury145. Paediatricians have a role to play in supporting parents in injury prevention, as well as in data collection and identification of children at greater risk of non-intentional injuries146.

In the home, many important safety practices – such as ‘child proofing’ kitchen and bathroom cupboards145 and safe bathing – can be achieved at minimal cost.

There is also a range of available modern safety equipment such as smoke alarms, safety gates on stairs and thermostatic mixer valves to reduce hot tap water temperature which may be effective in reducing the risk of injury94,145.

Spotlight on inequalities

Children and young people living in the most deprived households are at a higher risk of non-intentional injury than those living in the least deprived147. The impact of this can be seen in Figure 3.3.3, where the Standard Discharge Ratio* for non-intentional injury in children under 15 years old declines as deprivation decreases. The decrease is particularly noticeable between the first and second deprivation quintiles. Deprivation is linked to injuries through poor and crowded housing infrastructure, lack of home safety planning and equipment, poorly functioning equipment and poorer parental education in how to protect children.

Local authorities have a responsibility to provide strategic leadership for injury prevention, bringing together a very wide range of services from diverse sectors including health, education, social care, housing and emergency services142.

![Figure 3.3.3: Standard Discharge Ratio for non-intentional injury in children (<15 years) by deprivation quintile in Scotland 2014-2015](image)

*Standardised discharge ratio – see additional data note

*Figure 3.3.3: Standard Discharge Ratio for non-intentional injury in children (<15 years) by deprivation quintile in Scotland 2014-2015*141
Key actions

- Ensure co-ordinated cross-sectorial action to reduce non-intentional injuries through improved home safety education for parents and health and other early years’ professionals.

- Ensure that technological and engineering interventions are combined with education and inspection for maximum efficacy.

- Reduce inequalities relating to admission rates for children and their families in the most deprived areas compared to those in the least deprived areas.

Additional data note

The data provided by HES on the number of hospital admissions for England include children one to four years. In Wales data was provided by NHS Wales Informatics Service for children aged one to four years. Scottish data are provided by ISD Scotland for children aged zero to four years.

The hospital admissions data include the top three most common admissions caused by non-intentional injury and do not comprise an exhaustive list. Data provided by Scotland have been summarised and do not present the same diagnostic codes as England and Wales.

Data are available for Northern Ireland but for zero to nine years. The latest data are for 2014/2015, when the rate of hospital admissions was three per 1,000 population.

The standardised discharge ratio is equal to the number of observed discharges divided by the number of expected discharges, times 100, where the number of observed discharges is defined as the number of discharges in each area of interest (e.g. deprivation quintile), and the number of expected discharges is defined as the number of discharges that would have been ‘expected’ in the area of interest if the Scottish discharge rates had prevailed. Note that a value of 100 represents the value across the population as a whole.