Chapter 2

Overview

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Key statistics

- Death rates for injury and poisoning have fallen for all social groups except the poorest: these children are 13 times more likely to die.[1]
- The UK ranks 24th out of 27 European countries in a composite measure of pressure on families.[2]
- The UK has the highest proportion of children living in a family where no adult is employed compared with other European countries.[2]
- Disproportionate social disadvantage is borne by the young: 26.9% of children and young people (aged 0–19) are living in or at risk of poverty or social exclusion, compared with the overall population rate of 22.6%. These figures compare poorly with the best performing country – the Netherlands, with a rate of 15.7% in or at risk.[3]
- Social disadvantage shows a particularly strong 'hereditary' component in the UK, being 1.5 times stronger than in countries such as Sweden, Germany and Canada.[4]
- The average cost of raising a child from birth to 21 in 2013 has risen to £222,458 from £140,389 in 2003.[5]
- The weight of children on leaving primary school is increasing, despite lower weights on entering.[6]
- There is a developing gender gap for exploratory and healthy behaviours among teenagers, with girls appearing to have worse behaviours.[7]
- One extra year in education increases life expectancy in the USA by 1.7 years. Where poor school attendance and poor achievement are present, the risk of ill health is 4.5 times higher in adulthood.[8]
- The last decade has seen high levels of utilisation of both primary care and secondary care. There has been a 28% increase in admissions for those under 15 years old. During the same time period hospital admissions for less than one day have doubled.[9]
- The average number of visits to the GP by preschool children is 6; during school age this falls to 2–3. Around 1 in 11 children utilise hospital outpatients and 1 in 10–15 are admitted overall. Around half of under 1 year olds visit an Accident & Emergency department, leading to 1 in 3 being admitted.[10,11]
- Key adverse health outcomes would be reduced by 18–59% if all children were as healthy as the most socially advantaged.[12]
- Young men living in the poorest 10% of postcodes are almost five times more likely to attend an Accident and Emergency department as those in the richest 10%.[13]

Introduction

This chapter explores the rationale for this report's focus on the health of children and young people in England, and provides the context for Chapter 3, which lays out the financial rationale for investing in their health and wellbeing.

We start with a brief overview of recent policy initiatives for children and young people, which have attempted and often succeeded in addressing the challenges they face.

Next, we provide evidence for why this work needs to be sustained and built on further. Firstly, we consider the evolving evidence of the importance of the life course approach (i.e. how early events affect later disease patterns) and the biological underpinning of this. Secondly, drawing on the updated *NHS Atlas of Variation in Healthcare for Children and Young People 2013* and other sources, we identify the variation in patterns of healthcare utilisation in England, which signal that there is still great potential for improvement in children's outcomes. The Atlas allows comparisons between different geographic regions. Throughout this report, where variation is seen this is described as a comparison between the highest region and the lowest, e.g. three-fold variation would mean that occurrence was three times higher in one region than in the lowest.

The following section examines the range of ways to think about the drivers of health, with a focus on social determinants, risk and protective factors and exploratory behaviours. This section explores the common themes behind each of the report's later chapters: those following the life course and those focusing on mental health, neurodevelopment problems, looked-after children, and children and young people in the youth justice system.

The final part of the chapter examines the key policy approaches that run through much of this report: early intervention and prevention.

Recent focus on children and young people

Over the last five years there has been a wealth of reports to government seeking to address the many challenges of improving the lives of children and young people.[14–19] These reports put forward a number of recommendations. Many of these focused on early intervention in the early years, either developing new resources or, for example, in the case of early years education, enhancing the quality of provision and widening access. Equally, these reports stress the need to enhance the evidence base. The reports also advocate new approaches to these problems, for example using behavioural economics to examine promoting good parenting.

This has led to a number of government initiatives which have sought to modify these complex determinants for children and young people. This work has involved many central government departments and more independent voices such as that of the Children's Commissioner (see Box 2.1).

Box 2.1 Timeline of children and young people related policy initiatives

1998	National Childcare Strategy
1999	Pledge to eradicate child poverty in a generation
1999	Sure Start Local Programme
2004	National Service Framework set standards
2004	Sure Start development
2004	*Every Child Matters* – framework for a collaborative approach, focused on five domains: being healthy, staying safe, enjoying and achieving, making a positive contribution, economic wellbeing
2004	Children Act
2007	Children's Plan
2008	Healthy Child Programme
2009	*Healthy Lives, Brighter Futures: the strategy for children and young people's health*
2009	Laming Report
2010	Child Poverty Act

Life course

There is an increasing **understanding of the long-term effects of early life events**.[20] Barker et al. started to identify in the late 1980s that the nutritional status of the late fetus had long-term effects, specifically that 'under-nutrition' creates changes in the fetus that in later life can lead to increased rates of coronary heart disease.[21] This was revolutionary thinking. Barker was among the first to postulate that events which happen early in the life course, for example in fetal life, contributed independently to these disease types. Today it is widely accepted that 'programming', i.e. intrauterine events, affects the development of coronary heart disease, non-insulin dependent diabetes, hypertension, chronic obstructive pulmonary disease, some cancers and stroke.[22]

The effect of external factors does not stop at birth. Recently published data identify the prevalence of adverse childhood events in England.[23] This builds on **work from the USA that has identified a key set of events which, when they occur, have profound effects on the life course of the child**. Events include growing up in a household with a family member who is depressed or who suffers from mental health problems, or exposure to domestic violence. Long-term studies have associated these events with poorer outcomes, such as poorer educational attainment, increased risk of imprisonment, more substance abuse, increased mental health problems, higher levels of obesity, heart disease, cancer and unemployment, and increased involvement in violence. Of particular note, the presence of adverse childhood events is cumulative, i.e. the greater the number of adverse events experienced, the higher the likelihood of experiencing more adverse outcomes.[23,24]

Box 2.2 Examples of children and young people policy initiatives from May 2011

- Pupil premium.
- Early Intervention Grant.
- Community based budgets.
- Troubled Families Programme.
- Increased support and evaluation of the Family Nurse Partnership programme.
- Changes to childcare provision and maternity/paternity leave flexibility.
- Increased numbers of health visitors to support the Healthy Child Programme.
- Reinforcing the Early Years Foundation Stage and re-emphasising the importance of communication with parents.
- Creating the Early Intervention Foundation.
- Setting up the Social Mobility and Child Poverty Commission.
- The creation of a Social Mobility Index to be housed at the Department for Business, Innovation and Skills: e.g. the percentage of children achieving basic measures in GSCEs, and how well schools with the lowest percentage of free school meals do vs. those with a high percentage.
- The government mandate to NHS England included a focus on pregnancy, listening to the voice of children and young people through Healthwatch, continuing to join up resources around safeguarding, a focus on transition, continued support for Improving Access to Psychological Therapies, and an emphasis on special educational needs.
- Ministerial pledge in response to the Children and Young People's Health Outcomes Forum Report and recommendations.
- *The NHS Outcome Framework 2013/14* included a life years lost measure and a cancer survival measure with data to be available in five-year age bands. There were also placeholders for indicators of children and young people's experience of care and integrated care.
- UK Chief Medical Officers' guidance on physical activity.
- Support for school games and Change4Life Sports Clubs.
- Setting up of specialist clinical network for children by NHS England.
- Report of the Children and Young People's Outcomes Forum
- Catalysing work on medicine usage in children.
- Increased emphasis on child health workforce planning through Health Education England, the Centre for Workforce Intelligence and the Royal College of General Practitioners.
- *Improving Children and Young People's Health Outcomes: a system wide response.*
- Ministerial pledge on better outcomes for child health.

Box 2.3 Adverse Childhood Experiences (ACE) and their impacts in the UK[23]

Compared with those with no ACE, those with four or more had:

- 3.96 times greater risk of smoking
- 3.72 times greater risk of drinking
- 8.83 times greater risk of incarceration
- 3.02 times greater risk of obesity

These children and young people are more likely to:

- have poor educational outcomes/poor unemployment opportunities
- have low mental wellbeing and life satisfaction
- have had more recent inpatient hospital care and chronic conditions
- have been pregnant unintentionally before age 18

In summary, while there has clearly been considerable effort focused on children and young people, the next section outlines the need to build further on this and previous work.

Biological underpinning

Recent research has also started to identify how these complex interactions play out at a biological level. We have begun to understand that **developing executive functionality and self-regulatory skills are linked to the development of the pre-frontal cortex, and that this begins in infancy and continues until adulthood**.[25] Emotional insults during this key stage can disrupt this functionality (working memory, attention and inhibitory control mechanisms). Equally, being supported and nurtured leaves a young person more able to manage challenges in life.

Resilience is an important dimension of this. **Normative stress is part of normal development and helps to develop coping mechanisms.** Children can cope better with stress if they have effective buffers, such as a positive attachment with an adult. Toxic stress is an insult that occurs without such a protective factor and is able to damage the wiring of the child's brain and, with it, future function. It is not just the extent of the insult that has an effect: the time period over which the stress happens matters as well as the exact moment. For example, excess alcohol in pregnancy can cause fetal alcohol syndrome.[25]

As Jack Shonkoff has argued, as our 'knowledge base grows, it will be increasingly difficult to defend the absence of an explicit 'brain protection' strategy that focuses on both primary prevention and 'physiological healing' for young children whose life circumstances increase the risk of debilitating sequelae from toxic stress'.[25]

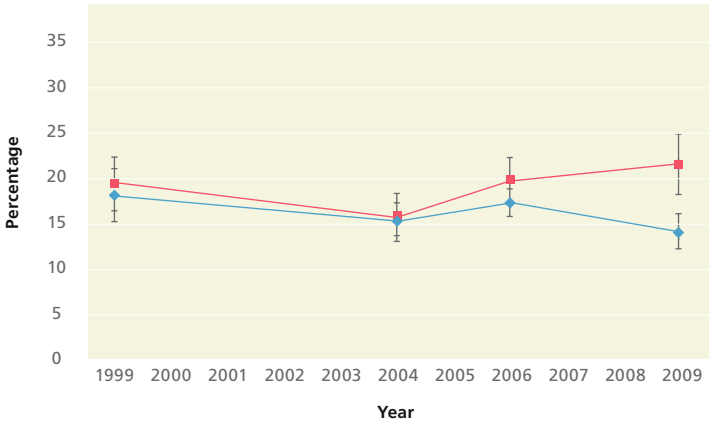
Variation

Looking across England, it is clear that there are great variations in the health of our children and young people. This is not a recent observation; the Court Report in 1976 clearly identified this as a major issue facing child health, and many reports since then have further stressed this.[22,26] Variation in health measures is complex; however, as a society we have become increasingly concerned by those variations that seem preventable.[27]

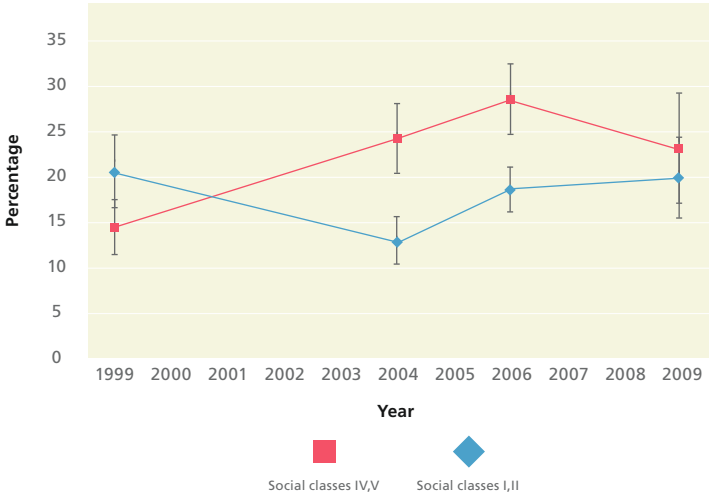
We refer to this preventable variation as health inequality. Health inequality does not just affect those in the top or bottom 10%, as there is a gradient across the population from better to worse health; this was clearly demonstrated by the Whitehall Study.[28] Perhaps the most profound inequality is in healthy life expectancy.[20] Furthermore it is increasingly clear that health inequality is bad not just for individuals and families, but also for wider society.[29]

Figure 2.1 – Prevalence trends of poor health/health risk by age group, England, 1999-2009 (%)[31]

Long-standing illness 0–12



Long-standing illness 13–24



The importance of health inequality has been recognised by successive governments, with a Health Inequalities Strategy running from 1997 to 2009 and a legal duty to tackle health inequalities introduced in the Health and Social Care Act 2012. However, the contribution of early inequality to lifelong health has only been fully appreciated more recently.

Trends in variation

Using the *Atlas of Variation in Healthcare for Children and Young People 2013* (see Annex of this report), we can start to see themes emerging with respect to geographic variation. The Atlas has been updated and amended since it was first published in March 2012. The data are now broken down by local authority rather than primary care trust areas. In the section below we look at three key groups of indicators: mortality, health promotion and healthcare utilisation. While the Atlas does not cover all aspects of child health, the indices chosen are those that cover a broad range of issues and those where data is available; thus they give the best snapshot of children's health and variation currently available. As Marmot and others have shown, these social gradients are manifest across a very wide range of outcomes.[20]

Mortality

The Atlas identifies a number of important trends in mortality:

- **Mortality** for children aged 1–17 **varies more than three-fold between regions, with a range of 7–23 deaths per 100,000 children**.
- **Infant mortality** shows similar variation, **with ranges of 2.2–8 deaths per thousand live births**.
- **Perinatal mortality** shows similar variation, with a **range of 4.2–12.2 deaths per thousand live births**.

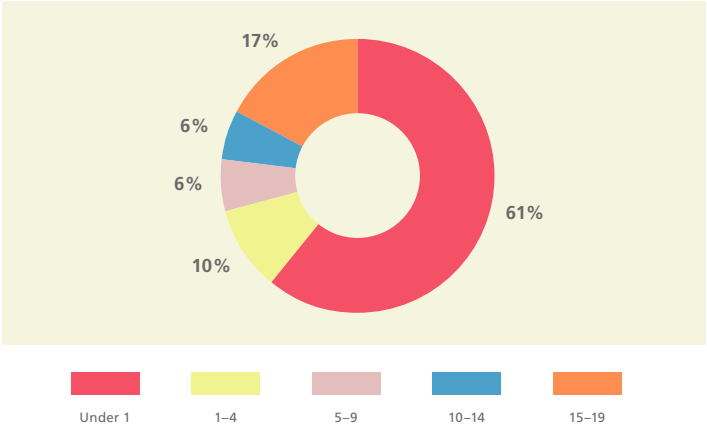
Of these, only **perinatal mortality** was captured in the 2012 version of the Atlas, and at that time the variation was two-fold. The most recent data therefore **show increased variation**.

Recent work by Wolfe et al. (2013) has shown that 20 years ago our mortality, in children under 19, was similar to other countries in Europe – now we are among the highest in Europe. Specifically, if we compare ourselves with the country with the lowest mortality for children and young people, Sweden (after controlling for population size among other variables), we find that **every day five extra children under the age of 14 die, which equates to 132,874 excess person years of life being lost per year in the UK**.[31]

While international comparisons should be interpreted with caution, the increase in variation coupled with the international data is a concern. Further analysis of the data around deaths identifies that **the majority of deaths in childhood are in the under 1 year olds; in fact, 70% of infant deaths (deaths under 1 year) in England and Wales in 2011 were due to neonatal deaths – deaths at**

less than 28 days.[32] The most common cause of death, in children as a whole group, is now being related to perinatal problems and congenital abnormalities.

Figure 2.2 – Age distribution of deaths among 0-19 year olds, UK, 2012



Data source: "Deaths by single year of age tables, England and Wales, 2012" ONS http://www.ons.gov.uk/ons/rel/vsob1/death-reg-sum-tables/2012/rft-deaths-syoa-tables--2012.xls

Earlier work on infant mortality showed that the Child Poverty Strategy aims – meeting targets for obesity, smoking, sudden unexpected death in infancy, overcrowding and teenage pregnancy – could go a long way to ameliorating this.[33]

Deaths shortly after birth, though, are not the whole story. We also know that deaths in later childhood, particularly adolescence, are of concern. The data show that more children die in adolescence than in any period other than infancy.[34]

The World Health Organization (WHO) classifies deaths into communicable disease and non-communicable disease (NCD). Deaths due to communicable disease are very low, but the latest data available on **NCD deaths in the UK show that for all ages, except 20–24 year olds, the UK does worse than its comparators**.[35] Indeed, the UK has poorer mortality than the USA for this group. We also see that up to 74% of deaths in the UK occur in children with co-morbidities, i.e. a long-term condition, of which the most common was a neurological or sensory condition affecting 44% in England.[36]

However, the story is not all bad. The UK does well when compared with the EU 15+ countries for injuries,[35] although we see variability for 10–18 year olds when looking across the four devolved UK administrations, with England performing better than its neighbours, and this disparity has increased since 1980. Researchers estimate that if the UK as a whole had the same mortality rate as England, then there would be 52 fewer deaths per year in 10–18 year olds. **The Atlas data show considerable variation, with the rate of deaths from non-accidental injury showing more than a five-fold variation and that from accidental injury showing a seven-fold variation across the regions.** Deaths from road-related injury show a more than 10-fold variation. Furthermore, we see that the rate of deaths from intentional injury (e.g. assault and self-harm) has not changed over three decades. Boys are particularly likely to experience harm. If we look to other data sources, we also see that the **most deprived are 13 times more likely to die from injury and poisoning**.[1]

In summary, more children seem to die in the UK compared with other similar countries. Crucially, this high mortality seems to be due in large part to neonatal deaths. Adolescent deaths give further cause for concern as well as deaths from non-communicable diseases. Furthermore, the data show that the variation in mortality rates (particularly perinatal mortality rates) has increased. Perhaps most concerning of all is that while mortality from injury is an area in which England is performing well, there is profound variation across the country. Thus as a country we have little to be complacent about.

Case study

The HOPE groups: involving mothers of children at most risk of infant death in decision making about maternity care – Bradford and Leeds

The Social Networks and Infant Mortality research study has established HOPE Bradford and HOPE Leeds project development groups, made up of bereaved Pakistani, African and teenage mothers who have experienced an infant death. The groups have been supported to identify priority areas for service development, based on findings from the study, along with ideas for how identified barriers to support might be addressed. The groups provide a mechanism for women from populations at most risk of infant mortality to feed into decision making about the care they and other women like them receive.

A number of initiatives are being developed, including:

- a pathway for women from Pakistani and African Caribbean backgrounds based on models already developed for teenage mothers
- a joint training event for health visitors and midwives on accessible/appropriate bereavement support
- representation of group members at the Maternity Services Liaison Committee and at a neonatal services users' support group they initiated
- group members will receive Sands (Stillbirth and Neonatal Death Society) bereavement support training and have fed into the organisation's work on improving access for minority ethnic parents
- support for a group member in relation to safeguarding has involved raising issues highlighted by her case with commissioners, care providers and advocates
- training/capacity development for group members has included sessions on communication/media skills and involvement in local and national dissemination activity. A member of HOPE Leeds appeared on Radio 4's 'Woman's Hour' and members of both groups will contribute to local developmental workshops and a national Sands conference.

Case study

Blind cord Education At Registration (BEAR) Project – Eastern Group Environmental Health Committee, Northern Ireland

Since 2010, there have been 13 deaths in the UK of children under the age of 3 as a result of becoming entangled in the loop of a blind cord. Most deaths have occurred where cots or beds have been close to the windows, but any window with a blind cord is a risk. A safety check of almost 2,700 homes in Northern Ireland with children under 5 years old revealed that, where blind cords were present, they posed a risk in 76% of living rooms, 68% of children's bedrooms and 62% of other rooms.

This project raises awareness of blind cord risks with parents/grandparents/carers at the registration of a birth and encourages preventive action to protect the life of their newborn.

When births are being registered at council offices, there is a short wait while birth certificates are being printed. Registrars use these few moments to raise awareness of home safety and to draw new parents' attention to the British Blind and Shutter Association leaflet 'Make it Safe!', which warns of the dangers of blind cords and is supported by the Royal Society for the Prevention of Accidents.

This intervention at registration of birth means that parents become aware of the issue at a very early stage and so can use this information to choose a more suitable window covering and site the cot (and future bed) away from the window. If they already have blind cords in their home, they are given cleats along with the leaflet so that they can make their blind cords safe.

In one year more than 3,331 families registering births have been provided with the information and, where relevant, equipment to ensure that the risk of blind cord strangulation in the home is minimised. They are also encouraged to share this message with grandparents, childminders, family and friends to make other homes safe.

The innovative nature of this intervention lies in its timing which coincides with birth registration – probably the optimal time to get the safety message across to parents. The fact that there is also one-to-one advice to back up the printed material is also important in encouraging the parent to take the recommended precautionary action.

This is a low-cost intervention (leaflets cost £52 for 1,500 and cleats can be purchased for 15p or less) that makes contact with **every** new parent.

Mary Heaslip, Registrar, Castlereagh Borough Council – *'In the Registration Service in Castlereagh we have been engaging with parents on the blind cord safety issue for the past year… we register approximately 1,300 births every year. The leaflet is on display on our desks and I have also given it to couples giving notice of marriage and to other clients. This is usually at their request because the leaflet has caught their attention and this has instigated a discussion. Blind cord accidents involving infants touch everyone and the issue brings out our overriding desire to protect babies and children.*

'Handing the leaflet out only takes one minute at the end of the registration, and I and my staff have no hesitation in continuing to highlight it. If just one life can be saved from thousands of leaflets handed out then it is worthwhile.'

A father of three said *'It's good to be aware of the dangers'*, pointing out that children develop at different rates and it is better to be prepared in advance of each development stage.

A new mum also thought the advice at registration was provided at a good time *'never too early to know about home safety'*.

Health promotion

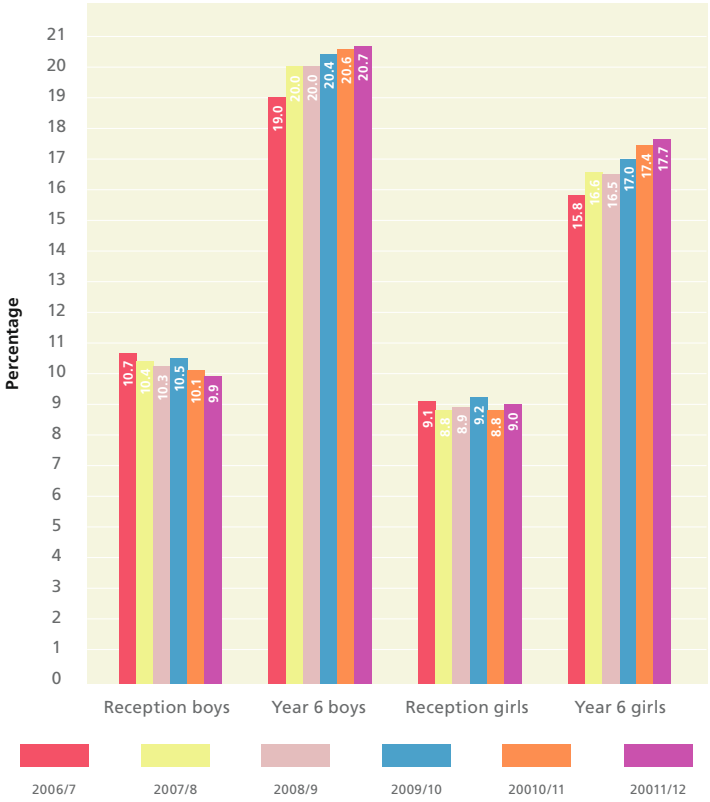
Over the past two years, cases of measles in England and Wales reached their highest figures for two decades, with 1,168 confirmed cases in January–May 2013.[37] These outbreaks demonstrate that vaccination coverage across the population is not high enough. We know that for the measles, mumps and rubella vaccine in particular, the rates of uptake range from 69.7% to 95.3%. Similar figures exist for other vaccination programmes, with the widest variation being seen in human papilloma virus vaccination (from 2.8% to 27.7%, a 13-fold variation). Successful vaccination strategies are important to consider at this juncture, with the recent extension of the programme to include rotavirus, among others.

Three worrying trends emerge with respect to very early life. Firstly, we know that breastfeeding is very important in promoting child health and is linked with fewer hospital admissions of infants for diarrhoea, vomiting and respiratory infections; less risk of sudden unexpected death in infancy; improved cognitive attainment; and a lower lifetime risk of obesity and diabetes. Additionally, there are benefits for the mother, such as improved breast and ovarian cancer survival. Breastfeeding promotion is cost-effective for both the families themselves and society.[38] Despite this knowledge, **there are local authorities where the breastfeeding initiation rate is as low as 42% and those where it is as high as 94%**. For breastfeeding at 6–8 weeks the range is 20%–83% (a four-fold variation). The most recent data available are for the first quarter of 2012, which show that there has been a small decrease in mothers initiating breastfeeding and infants being breastfed at 6–8 weeks.

When compared with Europe, we do badly for breastfeeding; for example, 90% of babies in Norway are breastfed.[22] Socio-economic factors play a role; however, rates of breastfeeding are influenced by many other factors, such as the provision of support mechanisms to encourage and assist mothers to breastfeed. Indeed, women suggest that their key reasons for not breastfeeding are: other people's attitudes; lack of knowledge and support; poor experience; and concern over baby's weight gain.[39] While many attempts have been made to improve this, there are two particularly important areas for further effort: increasing involvement with WHO and UNICEF's Baby Friendly Initiative; and monitoring and examining the effects of allowing formula milk to advertise health claims.[22]

The second worrying trend is the rate of smoking at delivery. The Atlas identifies that **there is a 10-fold variation in mothers self-reporting smoking at delivery across local authorities**. Given the earlier insight into the effect of early life events, this is an important marker.

Figure 2.3 – Prevalence of obesity by year of measurement, school year, and sex



NB: In this analysis 'children are classified as obese where their BMI is greater than or equal to the 95th centile of the British 1990 (UK90) growth reference
Data source: Public Health England

A third and particularly worrying trend is emerging in relation to obesity. **While, year on year, children are entering reception classes weighing less, children are leaving primary school weighing more.** The Atlas demonstrates that at both ages there is a nearly two-fold variation in children classified as overweight or obese across the country.[40]

If trends in behaviours adopted by children and young people themselves are examined, two groupings can be seen: exploratory behaviours and healthy behaviours – where exploratory behaviours are those that have the potential to lead to harm, e.g. alcohol use. This terminology captures the fact that many of the so-called 'risky behaviours' are those that most adults engage in safely, e.g. sex.

Overall there has been a significant reduction in the prevalence of exploratory behaviours in the past decade.[7] The number of young people drinking regularly has fallen dramatically. In 2002, 52% of 15-year-old boys and 48% of 15-year-old girls reported drinking weekly; by 2010 this was down to 32% of boys and 23% of girls. However, within this story there is huge variation: **hospital admissions for alcohol-specific conditions, in 0–17 year olds show an eight-fold variation (16.9 per 100,000 to 138.3 per 100,000)**. Similarly, there has been a decline in physical fighting.

The overall story, however, hides some areas of concern: that the declines are less marked for girls, and indeed with some behaviours there has been a rise. For example, in England while cannabis use at age 15 fell for boys between 2006 and 2010, there was a rise for girls. This compares poorly against smoking as a whole, where the proportion of young people who reported smoking (at least occasionally) was 7% of boys and 10% of girls, which was a fall for both sexes (in 2002, 15% of boys and 21% of girls reported smoking).[7]

Where the picture is more mixed in England is with sexual health, although the number of 15 year olds reporting having had sexual intercourse early has fallen, for boys from 17% in 2002 to 10% in 2010 and for girls from 9% to 4%. **More worrying is the fall in condom use since 2006.**[7] Huge variation exists in the rate of conceptions across England in women aged under 16 (9.4%–58.1%, more than a six-fold variation), and even greater variation in the percentage of delivery episodes where the mother is aged <18 years ranges from 0.3% to 2.8% (nine-fold variation). Given the data on mortality and the known correlation between the age of the mother and outcomes for the baby, this continues to be a disturbing statistic.[41] Rates of chlamydia infection also show considerable variation (nine-fold).

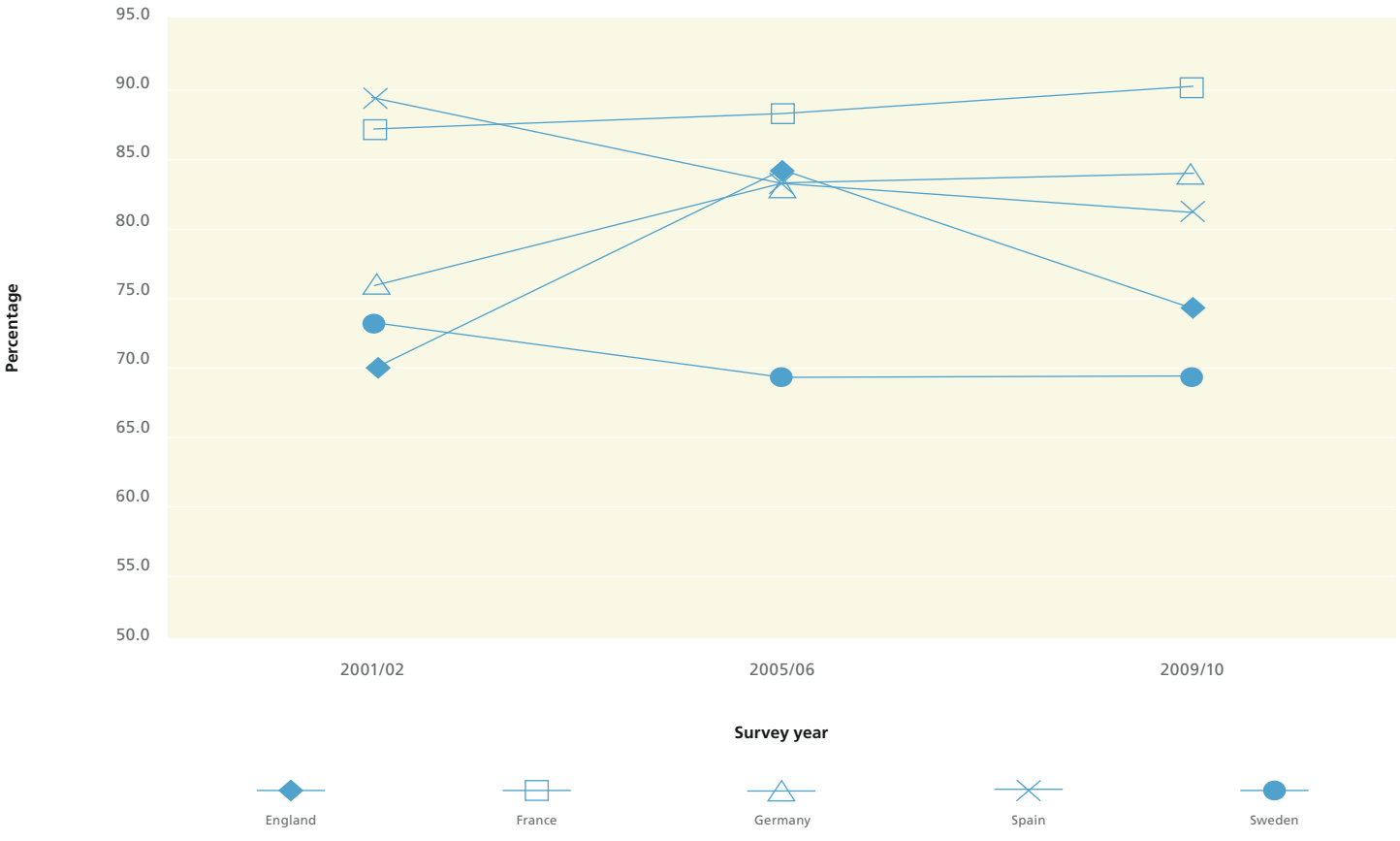
With respect to healthy behaviours, the story is less rosy. There has been no dramatic improvement over the last decade; indeed there has been some falling back, including eating fruit daily, eating breakfast and physical activity. Eating breakfast and physical activity also show a marked gender skew, with girls missing breakfast more. The gender differences are also marked with respect to body image – 22% of boys and 45% of girls think they are fat; and 9% of boys and 26% of girls report engaging in weight loss behaviour at age 15.[7] **England now has the highest rate of sugary drinks consumption in Europe.**[7,42]

'Eating healthy makes you excited, 'cos it makes you happy, tasting and enjoying the food while being healthy.'

Figure 2.4a – 15-year-old girls who used a condom at last sexual intercourse[7]

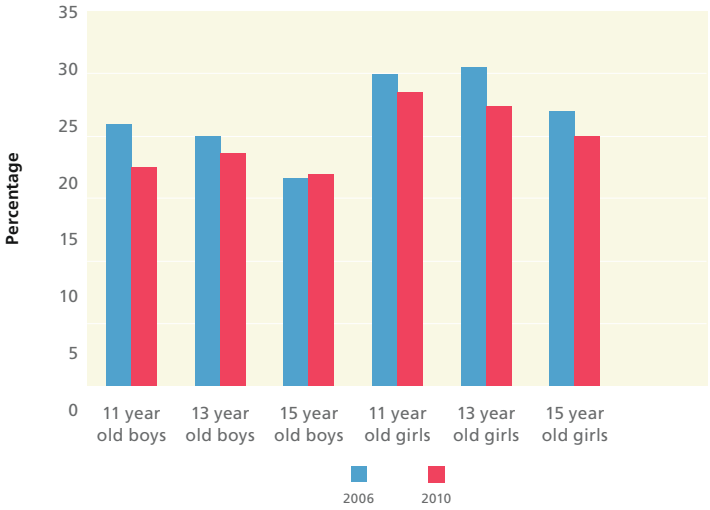
Source: Health behaviour in school-aged children international reports from the 2001/02, 2005/06 and 2009/10 surveys

Figure 2.4b – 15-year-old boys who used a condom at last sexual intercourse[7]



Source: Health behaviour in school-aged children international reports from the 2001/02, 2005/06 and 2009/10 surveys

Figure 2.5 – Percentages of young people who report eating fruit every day 2006-2010



'Running, jogging, sleeping and eating carrots makes me feel good.'

Figure 2.6 – Percentages of young people who said they never eat breakfast on weekdays

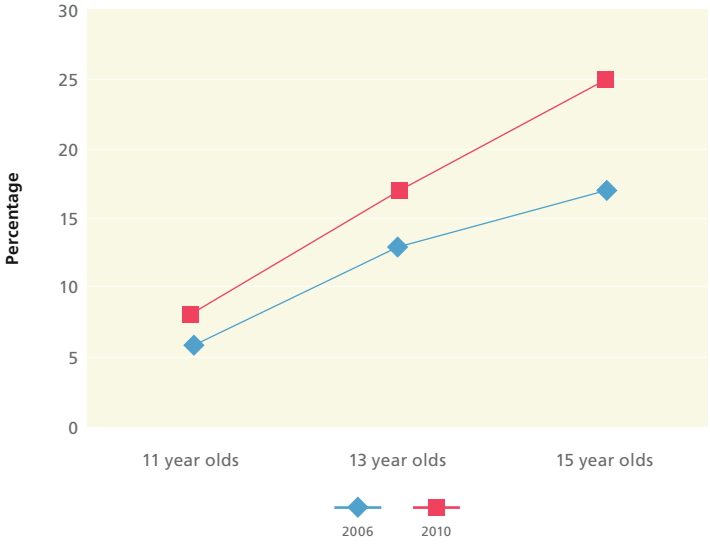


Figure 2.7a – Percentages of boys who meet recommended physical activity levels

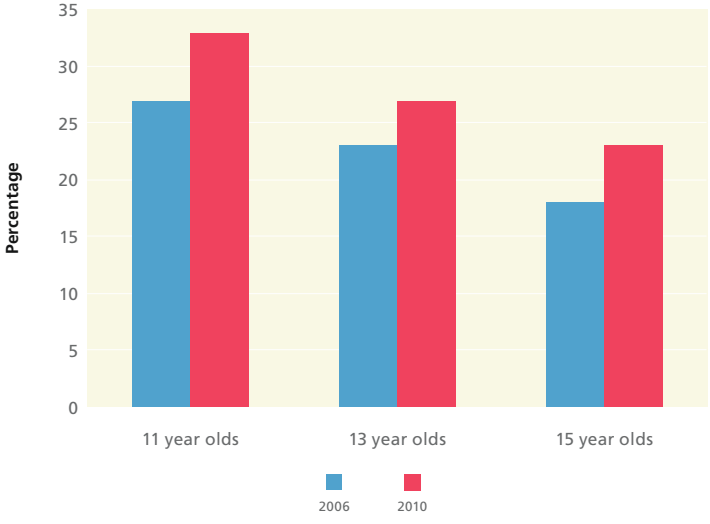
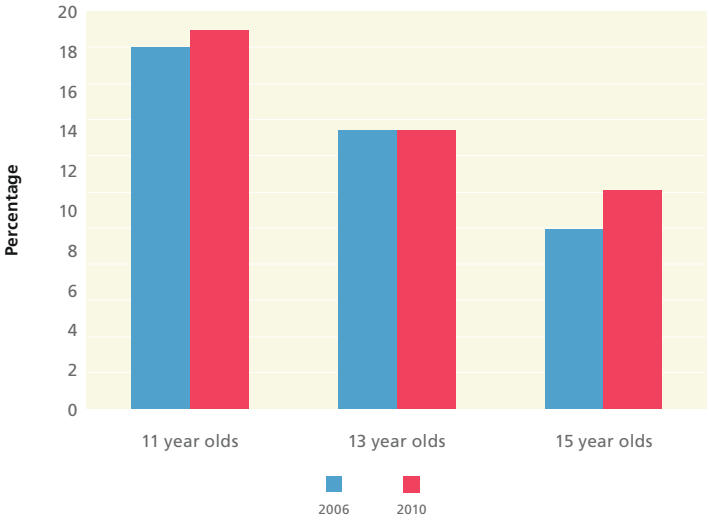


Figure 2.7b – Percentages of girls who meet recommended physical activity levels



'Fruits and vegetables are healthy. I have salad at home once a month. My mum likes salad and lemon.'

An electric apple, created by primary-aged children to show how exciting fruit and vegetables can be.
Source: Kids Company

The trends in health promotion seem to suggest that, while improvements have been seen in exploratory behaviours, healthy behaviours have lagged. Furthermore, areas such as breastfeeding are showing worrying early signs of falling off.

Healthcare utilisation

Drawing on data from the Atlas and beyond, it is possible to see trends in conditions and usage of healthcare:

- The average number of visits to the GP per year by preschool children is six during the school-age years.[11]
- **Around 1 in 11 children utilise outpatients each year.**[11]
- **Around 1 in 10–15 children are admitted overall each year.**[11]

- For children less than 1 year old, 50% visit an Accident & Emergency department and 1 in 3 are admitted each year.[10,11]
- 67% of the admissions for children are short stay; 39% are for minor infections.[11]
- **There has been a 28% increase in admissions of children aged under 15 over the last decade** and **admissions for less than one day have doubled**.[9,10,11]

The data from the Atlas show a nine-fold variation for emergency attendances for children under four and an eight-fold variation for emergency admission length of stay. Some improvement can be seen in bronchiolitis variation between the 2012 Atlas and the current one, although there is still considerable variation; previously six-fold after excluding outliers (the highest five and lowest five values) and now greater than four-fold.

Long-term conditions also show variation. As an example, emergency admissions for asthma are still showing a nearly seven-fold variation and those for epilepsy show a 13-fold variation.

A further trend is that **between 1999 and 2009 the health gap between social classes increased for hospital admissions in children under 5**. This was despite a national strategy to reduce health inequalities and a significant reduction in child poverty rates over this period.[30] Increasing demand for healthcare seems to be coupled with increasing disparity in access to healthcare, despite investment to reduce inequalities.

Summary

The health of children and young people matters for its own sake. This section has demonstrated that focusing on this area of health is important for a further reason: variation. Clear trends in mortality, health promotion and healthcare utilisation are apparent. There is an urgent need to improve access in England and to eliminate regional poor performance, as illustrated by variation.

'I like running around 'cos I'm fast. Young people run around and get energy – they can go to the Olympics. It is good to have energy. You can't be lazy – don't be lazy, be energetic. Exercise is actually good.'

The drivers of health

Health is driven by a wide range of factors operating at different levels, ultimately mediated by a complex interaction of genes and environment. One approach is to focus on the social determinants of health: to recognise that a range of interweaving elements such as poverty influence eventual health outcomes, and that these elements are reciprocally affected by health. Another is to think about eventual health as the sum of risk and protective factors, including resilience. These approaches are not mutually exclusive; rather, by using both approaches to examine the issues better, our understanding can be improved.

This report follows the life course but also has four areas of particular focus: mental health, neurodevelopmental disorders, looked-after children and those in the youth justice system. This section is important because it helps to explain how children and young people may develop problems within these categories and how these issues may be aggravated – for example, the factors that are associated with increased risk of a child being placed into the social care system: parental socio-economic status; receipt of benefits; single parenthood; parental mental illness; neurodisability in the child; and many more. Many of these are similar to the factors that would be found when looking for those associated with a child developing mental health problems or entering the youth justice system. This section therefore explores these common determinants.

Case study

Connecting care for children's health

The London Boroughs of Hammersmith and Fulham, Westminster, and Kensington and Chelsea have high rates of paediatric unscheduled care use. Many of these children could have been seen in a GP or community setting, and a similar trend characterises paediatric outpatient referrals: up to 50% of cases could have been managed within a primary care setting.

Work has been undertaken locally to understand the drivers behind this and three factors have been identified:

- **Access** to same-day GP appointments or urgent consultation.
- **Parental capability** to 'self-care' with the right support.
- **Parental confidence** in GP paediatric expertise.

The model aims to strengthen networking between primary and secondary care; build links with local authority services (e.g. schools); and facilitate better contact between children, families and primary care, to improve communication, information exchange, diagnosis and education. Its core elements are: paediatric outreach (joint clinics and multidisciplinary team meetings); developing community capacity through practice champions; and open telephone access (patient to GP and GP to paediatrician). Pilot projects have tested the key elements of the model. These have been developed collaboratively with local children, parents and professionals.

Children, families and professionals have all benefited through working in a more trusting network of professionals and patients, moving care out of the hospital to primary care, schools, children's centres and the home. Professionals in both primary and secondary care benefit from the discussion, joint diagnosis and management of conditions. Families have valued the open contact with their GP, even more when that GP is supported by a hospital specialist.

The long-term benefit will be to strengthen primary care's role in children's health, linking primary care practitioners to paediatric expertise and building strong community networks in order to reduce hospital activity for families, and shaping the way children and young people learn how to use the health service. The project is innovative in addressing the core issue of parental and professional confidence and expertise. The proposed model for commissioning these services has the potential to support integration and reduce the perverse incentives in the current contracting model, as well as driving the development of meaningful patient outcomes for children and young people. The project has been evaluated through quantitative and qualitative methods and has shown significant impact:

- 74% of parents said that they would be more likely to see their GP for child health related issues. 98% of parents would recommend the outreach clinics to their friends.
- 2% Did Not Attend rate.
- Increased confidence in diagnosis in primary care, reduced referrals.
- Sustained decrease in admissions for asthma in the period 2011–13.
- Reduced hospital admissions for paediatric diabetes and improved HbA1c (glycosylated haemoglobin) levels.
- Development of an information app for children and young people with sickle cell.

Mother of a child with diabetes – *'Our son, aged 8, was diagnosed with type 1 diabetes in January 2009 at the age of 4 and we first met Mae as part of the team at St Mary's. However, diabetes is an illness that is notoriously difficult to manage and understanding how to count carbohydrates and to juggle that with exercise, the weather and general wellbeing as the child grows is increasingly tricky. This autumn we were offered the opportunity to have Mae come to our house on two occasions to help monitor our son's progress. We had been finding it difficult to regulate his blood sugar levels and Mae's help was invaluable. Before that we may have seen Mae perhaps once a year under the more stressful conditions of a hospital clinic, which our son always hated as he didn't like missing school or seeing doctors in a hospital. Is it cost-effective? He had two bad hypos in early September and he was quite ill on both occasions. With Mae's help we have been able to avoid any further hypos and, what's more, the possibility of any extremely costly hospital admissions.'*

GP involved in outreach clinic – *'I don't think I have done a general paed referral since the clinic started.'*

Paediatric trainee – *'I learned how much parental anxiety GPs have to hold and manage'*, and *'I appreciated the context in which primary care sees families.'*

The social determinant approach

In 1980, Sir Douglas Black published his seminal *Report of the Working Group on Inequalities in Health*, highlighting how position in society affects disease. Indeed, Black did not just identify the problems, he proposed radical solutions to government: that improvements in health required improvements in healthcare and in the domains of social policy, for example housing,[43] a clarion call repeated by many since.[22]

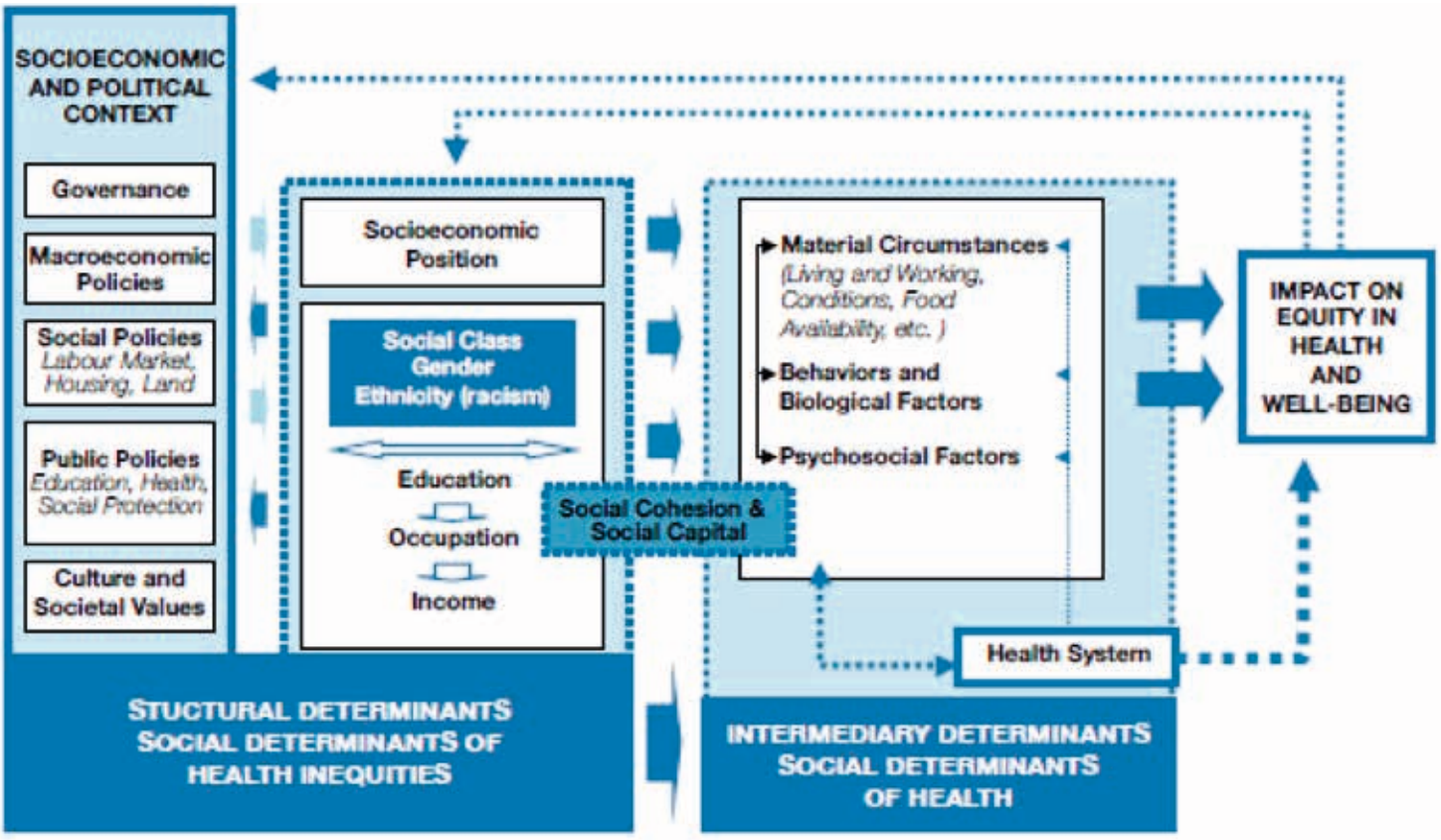
This built on the work of Illich,[44] who identified that the previously accepted biomedical paradigm was not the only way to look at health and ill health. Black's work was also an evolution of Urie Bronfenbrenner's Ecological Model, which forms the basis of our understanding of how individuals are shaped by a very broad range of factors: family, community and society.[22]

Since the Black Report, the public health community has embraced the concept of the underlying social determinants of disease. If Barker's hypothesis of programming made a crucial connection, then the social determinant approach adds the understanding of how these life-altering events occur and interact, i.e. why these exposures happen and why the consequences of these exposures are different in different people.

WHO defines the social determinants of health as 'the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels.'[45]

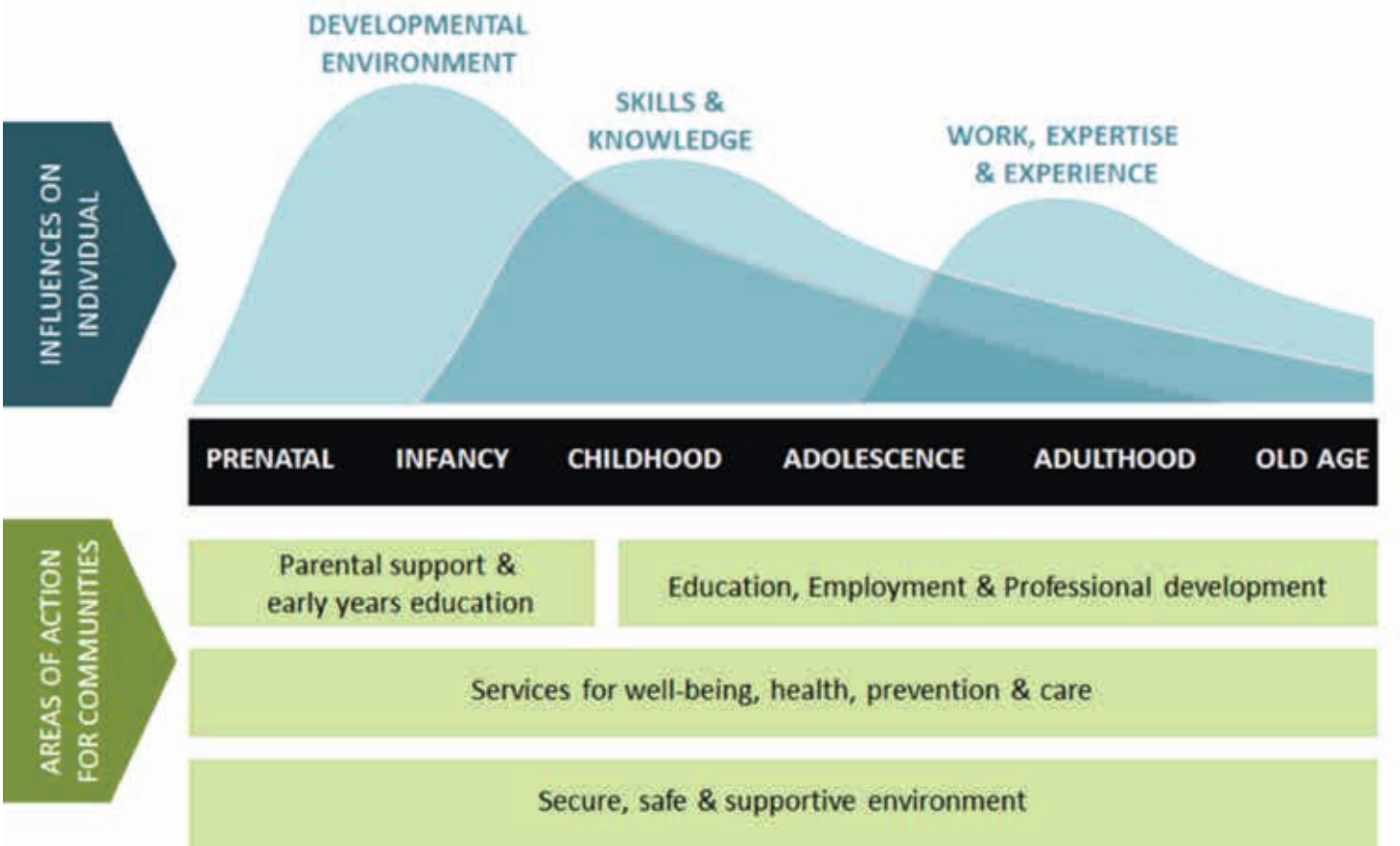
The WHO Commission on Social Determinants of Health reconceptualised thinking about how the health of an individual is affected by individual factors, the wider community and indeed national policies and practices. In this framework it is possible to see how the complicated tapestry of factors interrelates to affect the health of individuals and, importantly, the health of individuals relative to others in that society. The model includes **two concepts, social cohesion and social capital, relatively new to our understanding, as important links between the underlying determinants of health such as education and occupation, and how these interact with the intermediary determinants such as the psychosocial profile of the individual**. Thus this model emphasises the glue that binds individuals into wider groups **–** the sense of community.[45]

Figure 2.8 WHO Commission on Social Determinants of Health



Source: WHO A Conceptual Framework for Action on the Social Determinants of Health *WHO 2010*

Figure 2.9 Influences and actions along the life course



Source: Annual Report of the Chief Medical Officer, Volume One 2011 On the State of the Public's Health

Looking at Figure 2.9, it can be seen that there are potential areas of action relating to both the **individual** and the **community**. This model maintains the emphasis on the accumulation of effects on health and wellbeing starting before birth seen in the Marmot Review life course model.[20]

The top section of the diagram depicts areas of activity experienced by an **individual** that influence his or her development along the life course. The curves represent the **significance** on health and wellbeing of each individual activity, exerting the greatest influence in earlier years and tapering off in later life. These influences are as follows:

- **Developmental environment –** includes the environment into which a child is born, socio-economic conditions, pre- and postnatal nutrition, imprinting and epigenetic influences, and the psychosocial and developmental support received, all of which influence a child's life course.
- **Skills and knowledge –** includes all life skills, from social skills and resilience, to vocational skills and knowledge gained through all forms of direct and indirect education.
- **Work, expertise and experience –** indicates the acquisition of expertise and experience through all forms of paid and unpaid work and work-related activity.

The lower section of the diagram depicts areas of action at the **community** level, i.e. where action needs to be taken at a group rather than an individual level and often focused towards specific communities. These will (in part) determine the societal influences on individuals, and action here is essential for the healthy development of society. These areas of action are as follows:

- **Parental support and early years education –** includes family building in a more holistic sense, such as interaction with parents and/or caregivers, as well as targeted education on the importance of parenting, and nutritional and developmental support.
- **Education, employment and professional development –** includes the need for policy action in providing opportunities for continuous education and development at work.
- **Services for wellbeing, health, prevention and care –** includes basic physical, mental, emotional and preventive health measures delivered by and provided for communities, including the need for policy action in providing services for early diagnosis and treatment. 'Care' includes all aspects of health and social care across the life stage from a policy perspective but, equally, empowering families and communities to create caregiving environments.
- **Secure, safe and supportive environment –** not only alludes to the idea of creating supportive and caregiving environments, but also to taking policy action to ensure the safety and security of communities as a basic requirement.

Happy dancing bear, created in a workshop with primary-aged children to represent how Christmas at Kids Company feels.
Source: Kids Company

Social determinants and children and young people
Recent work by Sheffield University[46] has attempted to identify which of the social determinants have the most effect in putting children and young people at social, emotional and cognitive risk. Taking into account prevalence and risk size, **the most important factors they identified are: lone parenthood; low income; social housing; living in areas of deprivation; young motherhood; maternal education; and health**.[47] Frank Field, in his report *The Foundation Years*, placed these and other factors within the life course, which helps to identify when key factors come into play.[17]

Rather than addressing each of these social determinants, this next section focuses on a number of factors that are of particular importance to children and young people.

The relationship between health and education is increasingly an area of significant focus, and exemplifies the reciprocal interaction between determinants. While understanding of these links goes back at least to Abraham Maslow's work in the 1940s, unpicking this is challenging. There is, however, **increasing evidence that improving health improves educational attainment**. Some is focused on the micro level, for example work on understanding the role of iron deficiency in cognitive development.[22] Some is focused on much broader interactions; indeed, there is a growing body of evidence about the benefit of school-based activities on educational attainment. The best evidence is around asthma, mental health, nutrition, social and behavioural and focused interventions.[48,49]

Figure 2.10 The key drivers of life change throughout childhood

Source: HM Government (2010). The Foundation Years: preventing children becoming poor adults, the Report of the Independent Review on Poverty and Life Chances

There is also evidence on how **improved education helps health**: one extra year in education increases life expectancy in the USA by 1.7 years. Equally, if poor attendance and poor achievement are present, the risk of ill health is 4.5 times higher in adulthood. Some 12% of decrease in birth weight and 20% of decrease in prematurity risk are attributed to improved maternal education in the UK. Similarly, improved cancer survival occurs in those who are better educated, perhaps due to participation in screening in adulthood. More educated people abstain from alcohol and drink to excess less.[8]

There is also limited evidence from comparing schools that the school environment has an effect on health.[8,50]

Heated recent debate has focused on one particular set of social determinants: those addressing financial inequality and, in particular, poverty. This is a complex area, where definitions are key and highly controversial. No single indicator captures the full extent of the meaning and experience of poverty; is it about relative income standards across society, is it in relation to a threshold of need, or is it about ability to afford particular goods?[22] In his review of poverty and life chances, Frank Field suggested that, alongside longstanding indicators of child poverty, there should be a range of life chances indicators: cognitive, behavioural, social, physical and emotional development; the home learning environment; positive parenting; maternal mental health (although paternal mental health is of importance too); age of mother's first child; maternal education; and the quality of nursery care.[17] The Government laid out how they would respond to this through developing indicators in *A New Approach to Child Poverty.*[51]

This Chief Medical Officer's report recognises that different comparisons will be appropriate for different contexts. What is clear is that however poverty is defined the effects on the life course are profound. It is also important to note that poverty is increasing at present.

Source: UNICEF

As with many of the social determinants the effects span generations. The effect of parental income in the UK is one of the the strongest in OECD countries – it has 1.5 times the impact in Britain compared with Sweden, Germany or Canada.[18] Also important is how quickly socio-economic factors have an effect. Using cohort data, it is possible to predict from tests carried out with 5 year olds (such as the ability to copy shapes) the success of children at age 10 in terms of their reading and maths, and later at age 30 as measured by the highest educational attainment they have managed. Children of families from low socio-economic status with high scores at age 5 did not achieve the same success as those children from higher socio-economic backgrounds with similar test scores. Therefore the effect of family background is starting to override innate skills before children reach their second decade.[8]

Equally clear is that **the UK fares badly when compared with its neighbours**. Overall, 22.6% of the population are in or at risk of poverty or social exclusion, compared with the best performer, the Netherlands with 15.7%. **Most worrying is that 26.9% of children and young people (aged 0–19) are in or at risk of poverty or social exclusion; thus young people are disproportionately disadvantaged.**[3]

As Figure 2.8 (WHO Commission on Social Determinants of Health) identifies, effects of poverty are mitigated through other elements, for example parental education. Thus it is not just poverty that matters, but also how parents interact with their children, such as how they develop their communication skills.

The *NHS Atlas of Variation in Healthcare for Children and Young People 2013* has identified that **there is a six-fold variation in the percentage of children living below the official poverty line and a 74-fold variation in family homelessness across England** (defined as homeless households per thousand households with children).

Box 2.4 Effects of poverty[1]

Pregnancy – Mothers are more likely to be in poor health, have more psychological problems in pregnancy, gain less weight, smoke more and have more genital infections, and their babies to weigh less and be born early, with increased risk of infant mortality.

Infancy – Those in the lowest social economic group are nine times more at risk of sudden unexpected death in infancy. Death rates from injury and poisoning have fallen in all groups except this one and are now 13 times higher than those for more privileged children.

Children – Poorer children are more likely to be admitted to hospital and to be smaller.

Mental health – There is evidence of more attention deficit hyperactivity disorder, bed wetting, suicide and deliberate self-harm among younger children.

Box 2.5 Poor housing and fuel poverty[52,53]

- 1.4 million children (one in seven) live in bad housing.
- Poor housing increases ill health by 25%, causes three to four times the level of mental health problems and results in more school absence; children are more likely to suffer respiratory disease and there is a soft link with increased mortality.[63]
- Children in overcrowded homes being 10 times more likely to contract meningitis and to have poor growth.[63]
- Homelessness increases the likelihood of hospital admissions and worse access to care.
- Associated with this is fuel poverty, defined as having to spend 10% of net family income to heat the home to adequate levels of warmth (defined by WHO as 21°C for living rooms and 18°C for bedrooms for at least 9 hours per day). Fuel poverty is the effect of three variables: the efficiency of the home, the cost of fuel and income. It is notable that because of how poorer families buy their energy, they often pay higher unit prices than their wealthier neighbours and are less likely to switch their tariffs to find better deals. The impact of fuel poverty is profound:
  - More than one in four adolescents living in cold homes are at risk of mental health problems.
  - They are less likely to have a good diet.
  - Infants show poorer weight gain.
  - Children and young people have increased hospital admissions.
  - More are at risk of accidents in the home.
  - The effects do not just occur in health – cold homes are related to decreased educational attainment, emotional wellbeing and resilience.

Case study

Rotherham Warm Homes Healthy People Project – Rotherham Metropolitan Borough Council (MBC)

Some 18.2% of householders in Rotherham live in fuel poverty. The failure to tackle this issue will result in an increased strain and burden on the NHS and social care. Families living in fuel poverty and a cold home are also at increased risk of social isolation, and poor mental health and educational attainment.

Funding was received from the Department of Health's Warm Homes Healthy People (WHHP) Fund in 2012/13 to develop work aiming to reduce death and illness caused by cold housing during the winter and meet the aims of the 2012 Cold Weather Plan. The funding has enabled partner organisations to offer support to the most vulnerable members of the Rotherham community, including older people, families, deprived communities, people living in poor housing stock and those with long-term conditions, including mental ill health. Project outputs include:

- 2,000 warm packs distributed to adults and children across Rotherham with a focus on vulnerable households
- more than 140 households supported by handyperson services
- more than £40,000 of extra benefits identified
- energy best deal and energy efficiency training for front-line staff
- energy and health, and Green Deal awareness raising for the public and the local workforce.

Rotherham MBC Parenting Team – The Slovakian Roma population is increasing in Rotherham. Historically this group has been difficult to engage with and subsequently offer support to. The WHHP funding has enabled the Parenting Team to offer cooking sessions to 33 families. The Rotherham branch of Jamie Oliver's 'Ministry of Food' was commissioned to run sessions to support the families to create 'winter warmers on a budget'. A translator was required in order to run the sessions, which were held at a local children's centre.

'The cooking sessions and warm packs have proved to be a great way for my team to engage with families from ethnic populations we have not worked with before. There have been many wider benefits from the cooking sessions that we may not have been able to achieve without the WHHP funding.'

GROW, Women Making Informed Choices – A single mother with two children has previously been involved in a violent domestic relationship which has impacted on her mental health and had detrimental effects on her children. She has struggled to maintain a secure tenancy and has recently moved into private accommodation which is two

bus rides away from her children's schools. She finds it difficult to manage her finances and budget accordingly and has needed additional support with this. Recently she had her benefits suspended due to failure to attend her Jobseeker's Allowance appointment; this was because she had no funds to get to her appointment and now needs to make a new claim. This has left her and her children in an extremely vulnerable situation and resulted in the family being left in crisis. She has no close family or friends that she can turn to for support; her dad, who is the only close relative she has any contact with, has terminal cancer, which adds additional pressure and stress.

On two occasions GROW has provided the woman with funds for fuel as the family were in their home without any fuel supply or means of obtaining any for a number of days. This funding for help in emergencies was secured from Rotherham MBC.

Case study

Warm Homes Healthy People Suffolk County Council Adult and Community Services

This project aimed:

- to reduce the impact of fuel poverty and improve energy efficiency of homes so as to maintain health and wellbeing during the winter months; households with young children were a key target group for this intervention
- to reduce the incidence of cold-related illness and improve quality of life and attainment; this relates to Suffolk County Council's Raising the Bar education outcomes strategy.

It identified health and social care professionals in primary care, children`s and family centres, social care, community teams and hospital discharge teams and, through direct training and support, enabled them to identify, inform and, with consent, directly refer vulnerable individuals and families whose health, financial or housing circumstances could be improved by this programme.

Vulnerable households received an energy survey and, where appropriate, free supply and installation of insulation, energy-saving products and smoke alarms.

Free emergency boiler repairs were undertaken, with temporary heating supplied until the heating system was repaired. Finance/benefit checks, money management and fuel tariff advice were provided. Fuel payments were made depending on families' housing and health circumstances.

The project demonstrates effective partnership working across tiers of local government, the health sector, and voluntary and social enterprise organisations.

A key innovation was the training and support provided to front-line health and social care providers via the health liaison officers, raising awareness and dramatically increasing the quantity and appropriateness of referrals across the spectrum of need, particularly in households with young children.

The following are direct quotes from grateful families, via their support worker:

Family with two boys aged under 5 – *'Nobody ever helps us as my husband works but just on a low income. I'm so pleased I came today even if you had to persuade me. They are going to help put £75 on both the gas and electric meters, which will mean I can have the heating on more and try and dry out our damp flat which should reduce condensation and mould. I hope then that the boys' asthma will improve.'*

Single mother with three children aged under 6, privately owned property – *'Oh my God, I can't believe somebody is going to help me financially with my heating costs, it will make all the difference with being able to buy food or just have sandwiches for tea. It was so simple and they might be able to help with my boiler too. They are sending somebody round to check the house to see if they can make it more energy efficient. I still just can't believe it, I feel shaky and like I'm going to cry any minute. Thank you all so much again.'*

Single mother with four children aged under 10 – *'Thank you so much for yesterday, I can't believe it; that will make such a difference as to what I can do with my boys as opposed to worrying about heating the house and how I can manage to pay for it.'*

Single mother with two children, one with a severe disability – *'Whoop, Whoop, just left and they gave me £250 worth of credit on gas and electric. Thank you so, so much. I still can't believe it and it was so simple.'*

Support worker – *'Thank you once again for what you offered all our families on the assessment for 'Surviving Winter' day.'*

In summary, as WHO's seminal commission identifies, social determinants are complex interacting factors. It is clear that these determinants have a profound effect on health.

Risk and protective factors

A complementary approach to thinking about disease causation is that of risk and protective factors. In this approach, disease development depends on the exact interplay of the two types of factors. Thus two children subjected to the same negative risk may not have the same outcome because one may be protected by, for example, a strong attachment to an adult.

There is increasing recognition, including financial modelling, that promoting wellbeing (sense of happiness, lack of worry as perceived by both parent and child) and developing good mental health improves health behaviours and health outcomes throughout life. Wellbeing is strongly linked to the

environment that children grow up in, both directly, i.e. in the family, and in the wider community/local geography. The relationship of factors is increasingly clear, such as screen time (negative to wellbeing), physical activity (positive), healthy eating (positive), having lots of friends (positive) and maternal wellbeing (positive).[54]

In particular, developing good parenting or surrogates for parenting (such as Multisystemic Therapy, Functional Family Therapy or Multidimensional Treatment Foster Care) has a positive effect. Similarly, enhancing school readiness through programmes that focus on preschool provision, enhancing the home learning environment and good primary school education are needed to improve educational attainment for the less well off. The evidence base for supporting mental health in schools is also considered promising. There is weaker evidence for the beneficial effect of nature and green space. This is particularly important because there is evidence that the mental health of children and young people is deteriorating. Key risk factors include parental mental health and parental substance misuse. Other factors which can work as both risk or protective factors are parenting skills, support groups, school support and wider community support.[55]

Case study

Resilient practice with families and children – BoingBoing social enterprise, University of Brighton

The dominant paradigm on how to build resilience emphasises resilience as residing solely in individuals, rather than arising from person–environment interactions. This risks resilience-based approaches ignoring system improvement dimensions.

The social enterprise BoingBoing has been jointly established by academics and community collaborators (www.boingboing.org.uk). A series of Resilient Therapy (RT) research and development projects emerging from the joint enterprise have generated new knowledge about context-specific resilience building in a range of circumstances. What's more, the work has highlighted the importance of working with parents, practitioners and young people themselves to enable this.

Community and academic collaborators have implemented and adapted RT and its Resilience Framework across many practice arenas both nationally and internationally, including adoption, fostering, mental health, learning disabilities, youth offending, and practitioner resilience in social care and health fields.

The RT approaches have been embedded in 10 local authority children's workforce training programmes and 12 university courses, in addition to community sector organisations such as Sussex Central YMCA, local Brighton charity Amaze, national charity YoungMinds and Newport Mind. Internationally, RT has been taken up by children's services in Greece, Italy and Sweden.

M – At 14, M turned to self-harming to cope with the tough times she was facing. M first encountered RT when volunteering with a community art group for young people with mental health issues which works collaboratively with the University of Brighton. More and more she started to replace self-harm with art as she occupied herself with her voluntary work and applied the Resilience Framework to her own life. M has worked as part of BoingBoing, collaborating with university academics on several RT projects and, together with other young volunteers, has written RT practice guides and talked about RT to a range of audiences. M is passionate about art and helped write a guide for working with young people with complex needs through community arts practice following a resilience-building project exploring the RT approach in this context.

T – T is a young person who participated in the Visual Arts Practice for Resilience study with the University of Brighton: *'It's built my confidence up, like I can travel on the bus without getting nervous. And when I go home I feel all good about myself, I get on better with my family 'cos if I'm doing art and I'm expressing my feelings about things like college and stuff, and then when I go home and see my family, well my foster family, I feel really cuddly and really happy.'*

M and her community group friends also wrote a Mental Health and Resilient Therapy Toolkit using examples of their own experiences. The book helps parents and carers understand how they can support their children using the RT approach when they are facing mental health challenges. She said: *'RT has not only given me new ideas on how to be more resilient in my everyday life, but taught me to acknowledge how resilient I am and have been in the past. Before my involvement in RT I looked at things in a more negative way and didn't fully appreciate the power of the positive steps I was taking. I feel a great sense of purpose and am hopeful that I have drawn something positive from my own negative experiences by helping other people going through similar difficulties by creating resources with Brighton University using RT.'*

At BoingBoing, resilience research is more than just taking part in projects; parents, practitioners, young people and academics have formed a community around the work, allowing knowledge, ideas, skills and development to cross boundaries and challenge traditional hierarchies.

'I feel good when I get to do stuff that I want to do, like swimming.'

Resilience is the term used to describe the relative resistance that can be shown by the brain to psychosocial risk experiences.[56] It is one mechanism of encapsulating this risk/protection profile. Put simply, 'it is the capacity to resist or bounce back from adversity'.[56,57] It is the ability to overcome stressful insults or to experience a relatively good outcome despite exposure to situations or insults that that create negative effects in others.

As the earlier section on the biological underpinnings notes, the developing brain can benefit from controlled exposure to stress. Thus it is not necessarily true that avoidance of stress is beneficial to healthy brain development. Indeed, Sir Michael Rutter, a leading researcher in this field, has clearly articulated the parallels with immunisation. We seek to protect our children from infectious disease, not only by avoidance or eradication of that disease, but by boosting the individual's reactions to that disease, i.e. inoculation with a low dose of the infectious agent. Thus exposure to a small dose of the harm produces a lifelong ability to respond better to that harm.

Resilience is similar: **exposure to low-level stressors leads to changes in the developing brain that are protective for later life events**. As with immunisation, dose matters and there is an important cumulative effect. A single vaccine, however, does not protect against all infectious diseases; thus children may show resilience to some situations or exposure and not to others. Also important is that acute stressors are generally less deleterious than chronic ones.[56,57]

Crucially, as with immunisation, the exact response of children to the stressor varies. Individuals mount immune responses that vary in strength, due to a range of factors. In the case of resilience, factors which influence the response include the presence of other risk and protective factors. Examples of this include the genetic make-up of the child and the local environment, such as family experiences.

Importantly, while positive experiences matter, it seems that they do not have a strong protective effect; rather, they help to balance some of the effect of risk factors. Equally, parental oversight to limit risks is important. An important mitigating factor is that **processing the adverse effect helps to support the development of resilience rather than acute harm**.

Perhaps this concept is best encapsulated in the case of children from troubled homes fostered in an institutional setting. Those most likely to have positive outcomes are the young people who have a good relationship with one parent or positive experiences from school, perhaps because this connection constrains the negative exposure and allows time for the cognitive or emotional processing that helps the young people develop mechanisms to cope with the stressor. These young people have higher social functioning in later life, through increased ability to self-manage, and higher self-esteem. It is interesting to note, though, that there is a saturation effect; if there was a positive experience in the home setting, additional positive school experiences had a limited additional effect.[56]

To conclude, the unique combination of protective and risk factors that a child experiences plays a fundamental role in determining the life chances for that child. Resilience is a concept that encompasses many of the protective factors.

Figure 2.12 Risk and resilience factors affecting health outcomes

Child characteristics	Parents and their parenting style	Family factors and life events	Community Factors
• Low birth weight/birth injury • Disability/delayed development • Chronic illness • Early behavioural difficulties (difficult termperament, disruptive behaviour, impulsivity) • Poor social skills • Poor attachment	• Single parent • Young maternal age • Drug and alcohol abuse • Harsh or inconsistent discipline • Lack of stimulation of child • Lack of warmth and affection • Rejection of child • Abuse or neglect	• Family instability, conflict or violence • Marital disharmony/divorce • Large family size/rapid successive births • Absence of father • Very low level of parental education	• Socioeconomic disadvantage • Poor housing conditions
• Social skills • Easy termperament • At least average intelligence • Attachment to family • Independence • Good problem solving skills	• Competent, stable care • Breast feeding • Positive attention from parents • Supportive relationship with other adults • Religious faith	• Family harmony • Positive relationships with extended family • Small family size • Spacing of siblings by more than two years	• Positive social networks (eg. peers, teachers, neighbours) • Access to positive opportunities (eg. education) • Participation in community activities eg. church

Adverse child health outcomes associated with risk factors

Physical health outcomes	Behavioural outcomes	Learning/school	Emotional/Mental Health
• Failure to thrive • Child abuse and neglect • Poor physical health	• Aggression • Attention difficulties • Deviant peer group • Risk taking – substance abuse	• Poor cognitive development • Poor speech and language development • Poor reading skills/illiteracy • School failure/early school	• Poor attachment • Anxiety • Depression • Alienation • Suicidal ideation or suicide

Adapted from a table created by Centre for Mental Health

Summary

There is a role for health services in addition to the family unit, schools, social services and broader communities. This section explored ways of thinking about the drivers of health: the social determinant approach and that of risk and protective factors. Understanding both approaches allows insight into different approaches to improvement.

How can policy make a difference?

The evidence presented to date clearly articulates that the life course matters. In particular, events in the early period of life have a profound effect the on future health and wellbeing of children and young people. Furthermore, it is clear that the social circumstances into which children are born and grow up, interacting with and through the biological underpinnings, matter. This final section looks at two fundamental responses to these challenges: the prevention approach and that of early intervention, which the following chapters explore in more detail.

'What don't break you makes you stronger' – This sculpture uses the wardrobe as a metaphor to explore feelings about family, home and identity.
Source: Kids Company

Box 2.6 Developing areas for building resilience based on Barnardo's work[57]

In the antenatal period:

- Optimising maternal health through nutrition, avoidance of maternal passive smoking, maternal alcohol consumption and nurturing maternal mental health.
- Social support to mothers from partners, family and external networks.
- Good access to antenatal care.
- Interventions to prevent domestic violence.

During infancy:

- Breastfeeding to at least 3 months.
- Continuous home-based input from health and social care services, lay or professional, for those at risk, e.g. Family Nurse Partnership.
- Social support for mothers with moderate perinatal stress.
- Good-quality housing.
- Parent education.
- Safe play areas and provision of learning materials.
- Support from male partners.

During the preschool period:

- High-quality preschool day care.
- Availability of alternative caregivers.
- Food supplements.
- Links with other parents, local community networks and faith groups.

Effective strategies for middle childhood (ages 5 to 13):

- Creation and maintenance of home–school links for at-risk children and their families, which can promote parental confidence and engagement.
- Positive school experiences: academic, sporting or friendship-related.
- Good and mutually trusting relationships with teachers.
- Provision of breakfast and after-school clubs.
- Development of skills, opportunities for independence and mastery of tasks.
- Structured routines, and a perception by the child that praise and sanctions are being administered fairly.
- In abusive home settings, the opportunity to maintain or develop attachments to the non-abusive parent, other family member or, otherwise, a reliable unrelated adult; maintenance of family routines and rituals.
- Manageable contributions to the household that promote competencies, self-esteem and problem-focused coping.
- In situations of marital discord, attachment to one parent, moderation of parental disharmony and opportunities to play a positive role in the family.
- Help with resolving minor but chronic stresses as well as acute adversities.

Effective strategies for adolescence and early adulthood (ages 13 to 19):

- Participation in a range of extracurricular activities.
- Positive school experiences.
- Strong social support networks.
- The presence of a least one unconditionally supportive parent or parent substitute.
- A committed mentor or other person from outside the family.
- A sense of mastery and a belief that one's own efforts can make a difference.
- The capacity to re-frame adversities so that the beneficial as well as the damaging effects are recognised.
- The ability – or opportunity – to 'make a difference' by helping others or through part-time work.
- Not to be excessively sheltered from challenging situations.

Approaches to public health

Geoffrey Rose identified the seemingly paradoxical concept that the majority of disease is to be found in low- or medium-risk groups, and that relatively less occurs among those with higher risks. Thus, **to maximise impact, the efforts to prevent disease should be focused on reducing risk across the population – shifting the curve**, not just focusing on the tails, i.e. the outliers. The importance of this approach can sometimes seem counter-intuitive. While many would argue that it is obviously better to target potential teenagers at risk of becoming teenage mothers, the evidence actually suggests otherwise, i.e. the most benefit can be obtained from a universal approach.[58] The same is true for approaches to other lifestyle factors.[59] Recently attempts have begun to address safeguarding using such a population-level approach, rather than just a targeted one.[22]

This demonstrates the importance of taking a population approach. However, we should acknowledge and act on the reality that a targeted approach for those at greatest risk can also deliver benefits. While universal approaches have their challenges, targeted programmes have particular problems, as illustrated by Healthy Start. Despite seven years of effort, a variety of problems such as supply and access issues have meant that less than 10% of those for whom this approach was intended are receiving their supplements.[60]

A further example is the mental health of women in the periods before and after birth. We know that 10% of women will suffer pregnancy-related mental health problems, yet many of these women will previously have been well. Thus supporting mental health is important, but so too is screening for disease or disease risk factors and concentrating efforts on those affected, for example improving the number of midwives who are trained in these areas (73% of services do not have a specialist midwife in mental health) and addressing the shortage of mother and baby units.[61]

Since both targeted and universal approaches have their advantages and disadvantages, using a careful combination of the two approaches – proportional universalism – is likely to produce the best results of all.

Box 2.7 Definition of troubled families

- Not in work
- Overcrowded/poor housing
- No qualifications
- Maternal mental health issues
- One parent with longstanding illness/disability
- Low income
- Not able to afford food/clothing.

Outcome of interest: improved-school attendance, decreased criminal behaviour, parents obtain work, decreased cost.

Early intervention and prevention

The launch of the Early Intervention Foundation saw the coming to fruition of the efforts of many to focus attention on the need to change how we address problems earlier in society. Early intervention identifies that **we have sufficient knowledge in many areas to implement policies further upstream to prevent sequelae**. This is true of any life course stage, but clearly the higher upstream the intervention, potentially the more consequences that can be avoided. Thus much of the focus of early intervention is on the early years.[63] **The case for early intervention is increasingly clear.** Graham Allen's review found 19 interventions for which there was a solid evidence base in the area on which he focused. Our societal challenge is how to fund the intervention when the return on investment will come many years down the line. Before this benefit can be realised, money must continue to be spent on the consequences of previous lack of investment, that is, dealing with the reactive, rather than being ably proactive.[16] **The recent National Audit Office report identified that few areas of government were currently using early intervention.**[64]

Public health approaches tend to use terminology such as primary, secondary and tertiary prevention, where primary prevention is about stopping the disease occurring, secondary prevention is about minimising harm of the disease and tertiary prevention is about mitigating the functional impact. Clearly the concept of early intervention has similarities to that of the prevention approach, but whereas the public health approach tends to focus on the population level, for example screening for diseases, the early intervention approach tends to be more targeted, as with the Family Nurse Partnership.[62]

Outlined in this section are two approaches to improving health: taking a universal approach (at a population level) and targeting high-need groups, and the concept of early intervention (working as close to the root of the problem as possible). Prevention and early intervention, while not mutually exclusive, are relevant for different situations.

Box 2.8 The prevalence and long-term impact of speech, language and communication needs – Royal College of Speech and Language Therapists

- 7% of children age 5 have speech, language and communication needs.
- 88% of long-term unemployed men have speech, language and communication needs.
- 60% of young offenders have speech, language and communication needs.
- Every £1 spent on enhanced speech and language therapy generates £6.43 through increased lifetime earnings.

Conclusion

This chapter has outlined the case for why it is important to focus on children and young people's health. Events in childhood affect the rest of the life course, and there is profound variation in child health and the wider determinants that affect it across England. This means there is significant potential for improvement.

The chapter then used two lenses – social determinants, and risk and protective factors – for looking at why health problems occur, and started to explore the commonality behind the later chapters in the report.

The final section explored how to address these challenges in particular through the approaches of prevention and early intervention. Successful policy needs to select the right approach for the right problem, combining both population-level and targeted approaches.

The next chapter underpins this argument by demonstrating the financial case for focusing on children and young people. It highlights the cost of ill health and how the tools identified in this chapter can help to ameliorate these issues, by addressing the relevant social determinants, boosting protective factors and mitigating risk factors.

Key messages for policy

- The foundations of lifelong obesity, smoking and other substance misuse, sexual health and mental health are all established in childhood and adolescence. Local and national strategies to address these problems must include age-appropriate interventions for children and young people, not consider them an optional extra.
- Social determinants matter. Recent evidence from studies such as the UK Adverse Childhood Experiences (ACE) study and improved understanding of the biological underpinnings identify that effecting health improvement requires a broad approach.[23]
- Much of the data that underpin evidence around the life course are based on cohort studies such as the Whitehall Study. More recent studies, such as the 1970 Cohort Study and the Millennium Cohort Study, continue to play a crucial role.
- For optimal outcomes, early intervention during phases of rapid brain growth (the early years and adolescence) is increasingly understood to be fundamental.
- Developing resilience is an important adjunct to navigating the life course.
- Population health approaches are crucial to reducing the burden of disease and such an approach should be applied to safeguarding.
- Where population level approaches are already in place, such as the Healthy Child Programme,[76] attention needs to be focused on sustaining this approach through austerity.
- Delivering programmes that benefit the whole population should be used in combination with targeted approaches, for example Healthy Start.
- Interventions must be evidence based and new services should be evaluated.
- Educating those involved in childcare around practices such as healthy eating should be integrated with efforts to improve the quality of education.
- Breastfeeding requires further encouragement, for example through the extension of WHO and UNICEF's Baby Friendly Initiative.[76]
- The community focus needs to be on healthy behaviour improvement as well as exploratory behaviour reduction. Exploratory behaviours should be looked at as groups, rather than individual issues, with special emphasis paid to girls.
- Further work should be carried out on understanding better the relationship between mortality and underlying long-term conditions.

References

1. Spencer N. Health Consequences of Poverty for Children, End Child Poverty with the support of GMB.
2. Wong D, Ashcroft J and Barker S (2011). The Family Pressure Gauge, Cambridge: Relationships Foundation.
3. 'Children at risk of poverty or social exclusion' – Statistics Explained (2013/9/3) http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Children_at_risk_of_poverty_or_social_exclusion#
4. HM Government, Opening Doors, Breaking Barriers: A Strategy for Social Mobility, Crown Copyright 2012.
5. LV=Cost of a Child: From Cradle to College 2013 Report. Available from: www.lv.com/assets/pdfs/other/COAC-10-report.pdf
6. The Health and Social Care Information Centre, Lifestyles Statistics, 2012, National Child Measurement Programme: England 2011/2012 School Year. Available from: www.hscic.gov.uk
7. Brooks F, Magnusson J, Klemera E, Spence, N and Morgan A (2011). HBSC England National Report: Health Behaviour in School-aged Children (HBSC): World Health Organization Collaborative Cross National Study. University of Hertfordshire.
8. Centre for Research on the Wider Benefits of Learning (2008). The social and personal benefits of learning: A summary of key research findings, Compiled and edited by Leon Feinstein, David Budge, John Vorhaus and Kathryn Duckworth, Institute of Education, University of London, London.
9. Gill P, Goldacre M, Mant D, Heneghan C, Thomson A, Seagroatt V, Harnden A. Increase in emergency admissions to hospital for children aged under 15 in England, 1999–2010: national database analysis. Arch Dis Child. 2013;98:328–338.
10. Saxena S, Bottle A, Gilbert R, Sharland M (2009). Increasing short-stay unplanned hospital admissions among children in England; time trends analysis '97–'06. PLoS One. 4:e7484.
11. Getting it right for children and young people overcoming cultural barriers in the NHS so as to meet their needs. A Review by Professor Sir Ian Kennedy, Crown copyright 2010.
12. Spencer N. Reducing child health inequalities: what's the problem? (2013). Arch Dis Child doi:10.1136/archdischild-304347.
13. Marbini AD, Hargreaves DS (2012). Children and young peoples' use of emergency services by age and socioeconomic status: an analysis of national hospital episode statistics in England.. Arch Dis Child 97(Suppl1):A146-147.
14. HM Government, Foundations for Quality: The Independent review of early education and childcare qualifications Final Report, Crown Copyright 2012.
15. Department for Education, The Munro Review of Child Protection: Final Report – A Child Centred System Eileen Munro, 2011, The Stationery Office.
16. HM Government, Early Intervention: The Next Steps. An Independent Report to Her Majesty's Government by Graham Allen MP,Crown Copyright 2011.
17. HM Government, The Foundation Years: preventing poor children becoming poor adults, The Report of the Independent Review on Poverty and Life Chances, Crown Copyright 2010.
18. HM Government, Review of Opening Doors, Breaking Barriers A Strategy for Social Mobility. Crown Copyright April 2011.
19. HM Government, The Report of the Independent Review on Poverty and Life Chances by Frank Field MP, Crown Copyright 2010..
20. Fair Society, Healthy Lives: The Marmot Review Strategic Review of Health Inequalities in England post 2010. London: Marmot Review; 2010
21. Barker DJP(1995) Fetal origins of coronary heart disease. BMJ 311:171–174.
22. Growing up in the UK: ensuring a healthy future for our children .BMA Board of Science, London: BMA Board of Science, 2013.
23. Adverse childhood experiences: retrospective study to determine their impact on adult health behaviours and health outcomes in a UK population. Bellis MA, Lowey H, Leckenby N, Hughes K, Harrison D. J Public Health (Oxf). 2013 Apr 14[Epub ahead of print]
24. Felitti VJ, Anda RF, Nordenberg D et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med 14(4):245–58.
25. Shonkoff JP (2012). Leveraging the biology of adversity to address the routes of disparities in health and development. ; Proc Natl Acad Sci USA. 2012 Oct 16;109 Suppl 2:17302–7.
26. Committee on Child Health Services (1976) Fit for the Future: The Report of the Committee on Child Health Services, Volume One (the Court Report). London: The Stationary Office.
27. Cheung CR, Gray JA (2013). Unwarranted variation in health care for children and young people, JournalArch Dis Child. 2013 Jan;98(1):60-5. doi: 10.1136/archdischild-2012-302041. Epub 2012 Aug 18.
28. Marmot MG, et al. Health inequalities among British civil servants: the Whitehall II study. The Lancet, Volume 337, Issue 8754, 8 June 1991, pages 1387–1393 C.
29. The Spirit Level: Why Equality is Better for Everyone. Richard Wilkinson and Kate Pickett, Penguin Books 2010.
30. Hargreaves DS, Marbini DA, Viner RM. Inequality trends in health and future health risk among English children and young people, 1999–2009. Arch Dis Child Published Online First: 30 May 2013 doi:10.1136/archdischild-2012-303403.

31. Wolfe I et al Health Services for children in western Europe Lancet 213 April 6;381(9873):1224-34.
32. "Death Registration Summary Tables - England and Wales, 2012" by the ONS released 10th July 2013 and available at ONS http://ons.gov.uk/ons/dcp171778_300596.pdf
33. Department of Health, Implementation Plan for Reducing Health Inequalities in Infant Mortality: A Good Practice Guide Review of Health Inequalities. Infant Mortality PSA Target. Crown Copyright 2007.
34. Hagell A, Coleman J, Brooks F (2013) Key Data on Adolescence 2013 London: Association for Young People's Health.
35. [Russell Viner personal correspondence]
36. Child Health Reviews UK Clinical Outcomes Review Programme Overview of Child Death in the Four UK Countries Research Report July 2013 Report produced by the Royal College of Paediatrics and Child Health CHR-UK Programme of Work at the MRC Centre of Epidemiology for Child Health, University College London, Institute of Child Health.
37. Public Health England data published 11 July 2013. www.gov.uk/measles campaign makes progress.
38. Renfrew, MJ, Pokhrel, S, Quigley, M, McCormick, F, Fox-Rushby, J, Dodds, R, Duffy, S, Trueman, P & Williams, A 2012, Preventing disease and saving resources: the potential contribution of increasing breastfeeding rates in the UK. UNICEF UK, London.
39. McFadden A and Toole G 2006. Exploring women's view of breastfeeding: a focus group study within an area with high levels of socio-economic deprivation. Maternal and Child Nutrition 2; 156–68.
40. National Obesity Observatory. Prevalence of obesity among children by school year and sex, National child measurement programme 2006/7 – 2010/11.
41. Office for National Statistics Statistical Bulletin Childhood Infant and Perinatal Mortality in England and Wales, 2011 27 February 2013.
42. Currie C et al., eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6).
43. Department of Health and Social Security. Inequalities in health: report of a research working group. London: DHSS; 1980. (Black report).
44. Medical Nemesis: The Expropriation of Health. Ivan Illich. Random House 1976 Pantheon Books, A Division of Random House, New York. First American Edition Copyright 1976 by Random House, Inc.
45. WHO A Conceptual Framework for Action on the Social Determinants of Health. WHO 2010.
46. Blank L, Baxter S, Messina J, Fairbrother H, Goyder L, Chilcott J. Summary review of the factors relating to risk of children experiencing social and emotional difficulties and cognitive difficulties. Available at www.nice.org.uk/nicemedia/live/13634/58884/58884.pdf.
47. Baxter S, Blank L, Messina J, Fairbrother H, Goyder L, Chilcott J. Promoting the social and emotional wellbeing of vulnerable pre-school children (0-5 yrs): Systematic review level evidence. Available at www.nice.org.uk/nicemedia/live/13634/58882/58882.pdf.
48. Durlak JA, Weissberg RP, Dymnicki AB, Taylor RD, Schellinger KB. The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions. Child Dev. 2011 Jan-Feb;82(1):405-32. doi: 10.1111/j.1467-8624.2010.01564.x
49. Farahmand FK, Grant KE, Polo, AJ, Duffy SN (2011). School-Based Mental Health and Behavioral Programs for Low-Income, Urban Youth: A Systematic and Meta-Analytic Review. Clinical Psychology: Science and Practice Volume 18, Issue 4, pages 372–390, December 2011
50. Bonell C, et al. The effects of the school environment on student health: A systematic review of multi-level studies Health & Place Volume 21, May 2013, Pages 180–191
51. Department for Education, A New Approach to Child Poverty: tackling the causes of disadvantage and transforming families' lives. Crown Copyright, April 2011.
52. Harker, L (2006) Chance of a Lifetime: The impact of bad housing on children's lives. Shelter.
53. The Health Impacts of Cold Homes and Fuel Poverty. The Marmot Review Team for Friends of the Earth 2011.
54. Public Health England, Healthy Lifestyle Behaviours of Young Children and their Wellbeing. 2013.
55. Public Health England Mental Health and Wellbeing Evidence Review. 2013.
56. Rutter M. Resilience concepts and findings: implications for family therapy. Journal of Family Therapy (1999) 21:119–144.
57. Promoting Resilience: A Review of Effective Strategies for Child Care Services – Summary. Tony Newman Barnardo's for the Centre for Evidence Based Social Services University of Exeter 2002.
58. Kneale D et al, Distribution and determinants of risk of teenage motherhood in three British longitudinal studies: implications for targeted prevention interventions.. J Epidemiol Community Health 2013;67:48–55.
59. Bonnell C et al,Addressing the wider determinants of problematic drug use: Advantages of whole-population over targeted interventions. International Journal of Drug Policy 19 (2008) 267–269.
60. Robert John Moy, et al. Successful public health action to reduce the incidence of symptomatic vitamin D deficiency Arch Dis Child 2012 97: 952-954 originally published online August 21, doi: 10.1136/archdischild-2012-302287

61. Hogg, Sally (2013) Prevention in mind: All Babies Count: spotlight on perinatal mental health. London: NSPCC. www.nspcc.org.uk/spotlightwww.gov.uk/government/policies/helping-troubled-families-turn-their-lives-around
62. www.gov.uk/government/news/family-nurse-partnership-programme-to-be-extended
63. The 1001 Critical Days, The Importance of the Conception to Age Two Period – A cross party manifesto. Available at www.andrealeadsom.com/downloads/1001cdmanifesto.pdf
64. National Audit Office (2013). Early Action: Landscape Review Report by the Comptroller and Auditor General Amyas Morse.