

Chapter 3: Inequalities in child health

Dr Elizabeth Rough (PhD), Mr Peter Goldblatt (Marmot Review Team), Professor Sir Michael Marmot & Professor Vivienne Nathanson^a

The foundations for virtually every aspect of human development – physical, intellectual and emotional – are laid in early childhood. What happens during these early years, starting in the womb, has lifelong effects on many aspects of health and wellbeing [...] To have an impact on health inequalities we need to address the social gradient in children's access to positive early experiences.

The Marmot Review, Fair society, healthy lives, 2010¹

Overall, the health of children in the UK is improving. Between 1980 and 2009 the mortality rate for children aged one to 14 years fell by 61 per cent from 31 deaths per 100,000 population in 1980 to 12 deaths per 100,000 population in 2009.² This was accompanied by a steady decline in neonatal mortality rates (deaths under 28 days) and post-neonatal mortality rates (deaths between 28 days and one year) in England and Wales since 1980. Common infectious diseases of childhood are also coming under control through a combination of successful immunisation programmes, health promotion, disease prevention and treatment. While recent outbreaks of measles in the UK suggest that such improvements are fragile, the overall trends are encouraging.

National data can obscure variations between regions, social classes and ethnic groups. The difference in male life expectancy at birth between the most and least disadvantaged classes increased from 4.9 years in 1982/86 to 6.2 years in 1997/2001:³ by 2008, males in the least deprived areas could be expected to have 14.6 more disability-free years than their counterparts in the most deprived areas.⁴ While mortality and morbidity rates for some conditions like ischaemic heart diseases⁵ are declining, such declines have been more rapid in people from higher socioeconomic groups. As a result, the socioeconomic gradient of mortality has become steeper.⁶

These brief examples are illustrative of a broader trend; health inequalities between groups in society appear to be widening. This is vividly captured by the rate of child poverty in the UK. A powerful indicator of the wellbeing of children, child poverty is

^a This chapter is based on Chapter 3, 'Inequalities in Child Health', of *Growing up in Britain* (1999), which was authored by A Quick and R Wilkinson.

usually measured as the percentage of children falling below 60 per cent of contemporary median income without deducting housing costs. A 1999 UNICEF report showed that by 1994/5 Britain had the third highest rate of child poverty out of 25 industrialised countries, at 21.3 per cent. Only Russia and the United States scored higher.⁷ Following a Government commitment in 1997 to eliminate child poverty, the rate began to decline, only to rise again after 2004/05. While data from 2009/10 shows that child poverty fell by 2 per cent between 2008 and 2010 to 20 per cent, forecasts produced by the Institute of Fiscal Studies indicate that child poverty will remain broadly constant between 2009/10 and 2012/13, before rising slightly in 2013/14.⁸ Differences between regions, ethnic groups, and family types are particularly striking. A Department for Work and Pensions (DWP) report found that black Caribbean and Indian children had rates of poverty of 26 and 27 per cent respectively, rising to 35 per cent for black African children, while over half of Pakistani (54%) and Bangladeshi (58%) children were in poverty according to 2006/7 statistics.⁹

Despite these disappointing figures, the UK has arguably led the world in research aimed at identifying and tackling health inequalities.¹⁰ Since the publication of the landmark Black report¹¹ in 1980 – which found social gradients to be present for many different causes of morbidity and mortality – evidence for the effects of social and economic inequalities on health has grown. In 2010, the critically acclaimed Marmot Review categorically stated that ‘social and economic differences in health status reflect, and are caused by, social and economic inequalities in society’.¹ Like the Black report, the Marmot Review team found that ‘the relationship between social circumstances and health is [...] a graded one’; put simply ‘the higher one’s social position, the better one’s health is likely to be’.¹

Underpinning the Review is a life-course perspective. This recognises that social and biological influences on development begin before conception, accumulate through pregnancy, and impact upon the child at birth. From then onwards, the child will experience a wide range of shifting social, economic, psychological and environmental factors as they progress through the different stages of life. It is the accumulation of, and interaction between, these influences that the Marmot Review identifies as casting “‘a long shadow” over subsequent social development, behaviour, health and wellbeing of the individual’.¹

3.1 Definitions of disadvantage

While it is now well established that social and economic deprivation is associated with poor health outcomes, difficulties remain with both measuring deprivation and categorising individuals accordingly. Social class is a widely used measure, though it is not necessarily an indicator of ‘material’ wealth nor is it the only determinant of life chances. In 2001, the National Statistics Socio-economic Classification (NS-SEC) replaced ‘Social Class based on Occupation’ (formerly Registrar General’s Social Class),

and 'Socioeconomic Groups', as the measure used for all official statistics and surveys. The NS-SEC is an occupationally-based classification: it differentiates positions within labour markets and production units in terms of their typical 'employment relations'.¹ The NS-SEC categories thus distinguish different positions (not persons) as defined by social relationships in the work place and uses these as the basis from which to allocate socioeconomic status. The eight NS-SEC classes are as follows:

- 1.1 large employers and higher managerial occupations
- 1.2 higher professional occupation
- 2 lower managerial and professional occupations
- 3 intermediate occupations
- 4 small employers and own account workers
- 5 lower supervisory and technical occupations
- 6 semi-routine occupations
- 7 routine occupations
- 8 never worked and long-term unemployed.

'Deprivation indices', such as the Carstairs deprivation index and the Index of Multiple Deprivation, are also employed to gauge disadvantage.¹² These types of measures calculate 'deprivation scores' for people living in a predefined geographical area using either a weighted or unweighted combination of indicators. Carstairs scores, for example, are based on the unweighted combination of four variables (unemployment, overcrowding, car ownership, and low socioeconomic class) taken from the 2001 Census.

For children it is not only material wealth that matters; their wellbeing is directly related to their emotional environment and the social circumstances into which they are born and continue to grow, live, work, and age.¹³ A child may come from a materially privileged family, yet problems will arise if they are unwanted or resented, neglected or abused. Wellbeing, in other words, cannot be assessed by focusing on a single factor or variable; it is multidimensional. This is recognised in the 'ecological perspective' on child development which aims to locate a child's wellbeing in the context of the family, friendship networks, school, and the neighbourhood, rather than solely in the context of material wealth.¹⁴ It is also important to remember that such factors may interact to produce complex, and sometimes unexpected, outcomes:¹³ socioeconomic factors such as poverty, unemployment or homelessness may exert their effects on the child by the overall reduction in parental capacity to meet their own, and their children's, emotional needs. With regard to children, social disadvantage can be usefully understood, in part, in terms of the quality of child care. Good child care involves a mutually affectionate relationship based on respect and empathy with one or, preferably, more adults; consistent discipline based on positive reward for good behaviour rather than punishment for bad; and intellectual stimulation appropriate to the child's level of development.

3.2 Socioeconomic inequalities and health

- A boy born in Kensington and Chelsea has a life expectancy of over 84 years; for a boy born in Islington, less than five miles away, it is around 75 years.¹⁵
- Children with a high cognitive score at 22 months but with parents of low socioeconomic status do less well (in terms of subsequent cognitive development) than children with low initial scores but with parents of high socioeconomic status.¹
- The 2003 Children's Dental Survey found that, among five year olds, 13 per cent from social classes IV and V had never visited the dentist compared with 2 per cent from social classes I, II and III.¹⁶
- Childhood mortality from injury and poisoning fell between the early 1980s and early 1990s for all social classes; the differential between the classes increased, owing to the smaller decline occurring in social classes IV and V as compared to social classes I and II.¹⁷
- Low birth weight is the strongest risk factor for infant mortality. In 1994 in England and Wales, the average birthweight in Social Class V was 115 grams lighter than in Social Class I for births inside marriage and 130 grams lighter for births outside marriage registered by both parents.¹⁷

3.3 Social classes

Infant mortality is a key measure of the health of the nation.¹⁸ Since 1980, the post-neonatal mortality rate in England and Wales has fallen by 68 per cent, from 4.4 deaths per 1,000 live births in 1980 to 1.4 deaths per 1,000 live births in 2009. A similar decline has been observed in the neonatal mortality rate which, between 1980 and 2009, fell by 60 per cent from 7.7 deaths per 1,000 live births to 3.1 deaths per 1,000 live births.² Despite these improvements at the aggregate level, a class gradient persists. Drawing on the NS-SEC classification, data from 2005/6 shows that the infant mortality rate stood at 3.0 deaths per 1,000 births when parents were from the 'higher and professional' group. This compares with a rate of 4.8 deaths per 1,000 births for the 'routine occupations'.¹⁹ The difference between socioeconomic groups is even more pronounced when deprivation scores are examined. Babies born to the 'least deprived' parents, as calculated using the Carstairs index, had an infant mortality rate of 2.9 deaths per 1,000 births in 2005/6. Using the same index and years, babies born to the 'most deprived' parents had an infant mortality rate of 5.9 deaths per 1,000 births.¹⁹ A gender difference can also be discerned, with boys remaining at a consistently higher risk than girls: in 2008, the UK infant mortality rates were 5.1 per 1,000 live births for boys compared with 4.1 per 1,000 live births for girls.²⁰

While there are a range of established risk factors associated with infant mortality, low birth weight (under 2,500g) and prematurity are the most significant in terms of strength of association and consistency.¹⁹ Both factors are highly associated with socioeconomic status and deprivation: recent research has shown that young mothers (aged under 20 years), who were born outside the UK and were solely responsible for registering the

birth of the child had an elevated risk of giving birth prematurely to a low birth weight child.^{18,19} Together, these three risks led to a higher infant mortality rate when compared to babies born to other groups.¹⁸ Analysis of data from the Millennium Cohort Study (MCS)^b on birth weight produced broadly similar findings: the risk of low birth weight was found – after controlling for other factors – to be higher for mothers in poverty, underweight mothers, mothers who smoked during pregnancy, and mothers from minority ethnic groups.²¹ The last point is borne out in the 2009 gestation-specific infant mortality statistics for England and Wales. These show that ‘small for gestational age’ (SGA)^c babies were most prevalent in Indian (18.3%), Bangladeshi (17.9%) and Pakistani (15.6%) ethnic groups.²² The Marmot review is not alone in suggesting that, based on the figures outlined in this section, one-quarter of all deaths under the age of one year would potentially be avoided if all births had the same level of risk as for women with the lowest level of deprivation.¹

The role of unequal societies in the health of children is also revealed by comparing the relative poverty in different countries with infant mortality rates. Using the UNICEF index of child wellbeing, Pickett and Wilkinson examined associations between child wellbeing and material living standards (as measured by average income); the scale of differentiation in social status (income inequality); and social exclusion (children in relative poverty) in 23 high-income countries. They found that the overall index of child wellbeing was closely and negatively correlated with income inequality ($r=0.64$, $p=0.001$) and children in relative poverty ($r=0.67$, $p=0.001$) but not with average income.²³ Table 3.1 taken from Pickett and Wilkinson’s paper, lists two of the six components of the UNICEF index of child wellbeing (material wellbeing; health and safety) and 10 of the 39 individual measures.

b A longitudinal survey of 18,296 singleton children born in the UK between September 2000 and January 2002.

c SGA: birthweight below tenth percentile for each gestational age.

Table 3.1: Correlations of two of the six components of the UNICEF index of child wellbeing with income inequality, child relative poverty and average income

	Income inequality		Child relative poverty		Average income	
	<i>r</i>	P value	<i>r</i>	P value	<i>r</i>	P value
Overall UNICEF index	-0.64	0.001	-0.67	0.001	0.15	0.50
Material wellbeing						
Overall	-0.36	0.10	-0.37	0.10	0.40	0.06
Deprivation:						
<i>Low affluence</i>	-0.41	0.08	-0.40	0.11	0.80	<0.001
<i>Few educational possessions</i>	0.00	0.99	-0.26	0.25	0.29	0.19
<i>Few books</i>	-0.37	0.08	-0.34	0.14	-0.08	0.72
Work:						
<i>No employed parent</i>	-0.23	0.29	0.03	0.88	0.04	0.87
Health and safety						
Overall	-0.53	<0.01	-0.71	<0.001	0.16	0.45
Health at birth:						
<i>Infant mortality</i>	-0.76	<0.001	-0.66	<0.001	-0.13	0.55
<i>Low birth weight</i>	-0.42	0.048	-0.62	0.003	0.25	0.26
Immunisations:						
<i>Measles</i>	-0.11	0.60	-0.06	0.80	-0.26	0.22
<i>Diphtheria</i>	-0.04	0.86	-0.32	0.16	-0.13	0.56
<i>Polio</i>	-0.05	0.82	-0.49	0.02	-0.06	0.79
Child mortality:						
<i>Accident/injury mortality</i>	-0.27	0.21	-0.40	0.08	0.38	0.08

Source: Pickett K & Wilkinson RG (2007) Child wellbeing and income inequality in rich societies: ecological cross sectional study. *British Medical Journal* 335: 1080. Reproduced with the permission of the British Medical Journal.

Another indicator of child health inequality is accident rates. The Black Report identified accidents as one of the most important causes of death among children aged between one and 14 years, and also one of the causes of childhood mortality with the steepest socioeconomic gradient.¹¹ Figures from 2001 to 2003 show that the risk of accidental death for all children aged between 28 days and 15 years was 4.5 times higher in the routine class (NS-SEC class seven), and 5.3 times higher in the non-occupied class (never worked, long-term unemployed, full-time students or unclassified) than for a child with at least one parent in a higher managerial or professional occupation.²⁴ Deaths associated with accidents are declining: in 2008, 'external causes of morbidity and mortality' (which includes accidental injuries and poisonings) were responsible for 11.40 per cent of childhood deaths, falling to 9.55 per cent in 2009. The most common cause of death for children aged between one and 14 years in England and Wales has, since 2008, been 'congenital malformations, deformations and chromosomal abnormalities'.²⁰

The factors operating to cause such wide differences in morbidity and mortality between socioeconomic groups obviously need to be identified if action is to be taken to improve the current situation. An explanation for the relationship is still far from clear, though a number of theories have developed. The favoured explanation in recent years has emphasised that risk 'factors [...] combine and accumulate over the life course' and vary by social position.²⁵ The life-course perspective, and the idea that disadvantage accumulates throughout life, is central to the influential Marmot Review: the review stresses that the close links between early disadvantage and poor outcomes over time can only be broken by taking action to reduce health inequalities before birth, and continuing these throughout the life of the child.¹

3.4 Housing

There is clear evidence of the importance of a 'healthy' environment in the early years, in order to protect current health and prevent future ill health. In 2003, the BMA reported that poor quality housing – as indicated by the presence of damp or mould, disrepair, overcrowding and the lack of central heating and/or adequate cooking, preparation and storage facilities – is strongly associated with low income levels.²⁶ Poor quality housing, together with homelessness and living in temporary accommodation, all pose particular risks to health, especially the health of children. Research conducted by the housing charity Shelter in 2006 estimated that, in England alone, over one million children live in bad housing.²⁷ As well as being associated with debilitating, and even fatal, accidents, children living in overcrowded, inadequate housing are also more likely to contract meningitis, experience respiratory difficulties, and have mental health problems, such as anxiety and depression.²⁷ Physical and mental health conditions related to poor housing can also have associated impacts on a child's education: the Shelter report found that children in unfit and overcrowded homes miss school more frequently due to illnesses and infections and may experience delayed cognitive development.²⁷

Reducing the impact of poor housing on health inequalities was a component of the DH's 2003 report, *Tackling health inequalities*.²⁸ By 2007, the DH reported that, '[B]etween 1996 and 2006, the proportions of vulnerable private sector households and of social sector tenants living in non-decent housing decreased, with a narrowing of inequalities between these groups and non-vulnerable private sector households in both absolute and relative terms'.²⁹ Differences between ethnic groups persist: statistics from 2005 show that 31 per cent of non-white minority ethnic households lived in non-decent homes, compared with 26 per cent of white households.²⁹

Living in a cold home poses additional risks to health. In 2008, 18 per cent of households in the UK were estimated to be living in fuel poverty, defined as having to spend 10 per cent or more of a household's net income in order to heat their home to an adequate standard of warmth.³⁰ Living in fuel poverty is a function of three factors: the size and energy efficiency of the house, which will determine how expensive it is to heat; the type and cost of heating fuel required; and the household income, which determines how much a 10 per cent spend on heating would amount to.³⁰ Using data from the Families and Children Study (FACS), a large-scale, UK Government-sponsored survey of families with dependent children, Barnes, Butt and Tomaszewski found that children growing up with a black mother, in a lone parent family, or with family debts, were between two to three times more likely to experience inadequate heating on a persistent basis than other children.³¹ Earlier research has shown that children living in damp, mouldy homes (factors that are more likely to occur in cold, poorly insulated buildings) are between one and a half to three times more prone to coughing and wheezing than children in dry homes.³² In a 2011 report, commissioned by Friends of the Earth, the Marmot Review team also found that the negative, physical effects of cold housing on children were evident in terms of: 'infants' weight gain, hospital admission rates, and developmental status'.³⁰

Not all those who are income poor are fuel poor, yet the risk of fuel poverty rises sharply as average income falls.³⁰ One factor that cannot be overlooked in providing a 'healthy' environment is an adequate income. Although poverty is not the only factor that may lead to adverse outcomes for individuals, it is a factor that exacerbates, and contributes to, many other risk factors.

3.5 Definitions of poverty

Poverty can be measured in a number of different ways. The *Child Poverty Act 2010*³³ established a set of four indicators.

1. Relative low income – proportion of children living in households where income is less than 60 per cent of median household income for the financial year before housing costs.
2. Absolute low income – proportion of children living in households where income is less than 60 per cent of median household income in 1998/99, adjusted for prices but before housing costs.
3. Persistent poverty – proportion of children living below 60 per cent of median equivalised net household income in three out of the last four years before housing costs.
4. Low income and material deprivation – equivalised net income for the financial year is less than 70 per cent of median equivalised net household income, before housing costs, for the financial year.

The Coalition Government's *New approach to tackling child poverty*, published in 2011, lists a further 11 indicators of child poverty, including the proportion of children living in workless households, low birth weight, school readiness, teenage pregnancy, school attainment and young offending.¹⁵ While the statistical sources for these indicators vary, those that focus on income rely on the Family Resources Survey (FRS). This is a continuous survey of the incomes and circumstances of private households conducted by the Office for National Statistics and the National Centre for Social Research. The annual target sample size is 24,000 private households.

The Households Below Average Income (HBAI) is a series based on the FRS data and is used to discern the number of children living in impoverished households. In 2009/10, 20 per cent of children (2.6 million) were in households in the UK with incomes below 60 per cent of contemporary median net disposable household income before housing costs, and 29 per cent (3.8 million) after housing costs.³⁴ Compared to 2008/09, this represents a fall of two percentage points (0.2 million) on a before housing costs basis and a fall of one percentage point (0.1 million) on an after housing costs basis.

International, OECD data shows that, in the early 2000s, child poverty rates fell fastest in those countries with historically high levels of poverty, such as Mexico, the United States and the UK.³⁵ The reduction in the UK was largely attributable to the 'cash-transfer-focused' policies, including tax credit payments, rolled out during this period.³⁵ The same OECD report highlights that higher average family incomes are not necessarily associated with greater family income inequality: while the UK has shown above-average growth in family income, it has simultaneously achieved a sharp reduction in the level of child poverty.³⁵ By 2009, the UK's progress had slowed considerably. Figures from a

DWP report show that the UK had higher than the OECD inequality average for material wellbeing, placing the UK in a group of countries in the bottom two-fifths for overall inequality.¹⁵ The same report also found that, in contrast to European counterparts, the UK has a higher proportion of children living in workless households than almost any other EU country.¹⁵

All of the indicators outlined above have drawbacks. Absolute measures assume that standards of living, and notions of what is essential or necessary, remain static and do not adapt over time. Relative measures have been criticised on the grounds that 60 per cent of median equivalent income is an arbitrary measure that is not rooted in an understanding of the income people need to live. Recognising these problems, and the fact that there is not a socially agreed minimum income standard (MIS), Bradshaw and colleagues sought to answer the question: 'What level of income is needed to allow a minimum acceptable standard of living?' Their work relies on another type of indicator – 'budget standards'.³⁶

Budget standards identify the income needed to afford an adequate, acceptable standard of living. They often are costed on the basis of a 'basket of goods and services' – things deemed as essential to living. Since everybody's needs are different, Bradshaw and colleagues are careful to specify that a national MIS does not create an acceptable standard of living for every individual. What this work suggests is a minimum below which it is socially unacceptable for any individual to live. For a couple with two children the MIS per week, excluding child care and rent, is £370.05. This is £240 less than actual average expenditure, £83 higher than similar families on income support, and £33 higher than similar families in social housing. For a lone parent plus toddler, the comparable MIS is £210.31; £5 less than actual average expenditure, £49 higher than a lone parent on income support, and £27 more than lone parents in social housing spend.³⁶

3.6 Income and health

Missing from the work on the MIS is an explicit acknowledgement of the connections between income and health: Bradshaw and colleagues consider what is needed for individuals to have 'sufficient resources to participate in society and to maintain human dignity' and to consume 'those goods and services regarded as essential in Britain'.³⁶ The Marmot Review recognises that the relationship between income and health can operate in multiple ways: 'low income can lead to poor health and ill health can result in a lower earning capacity'.¹ While the mechanisms that link societal income distribution to health still require further elucidation, a number of pathways have been proposed. Kawachi has drawn attention to the 'psychologically mediated effects of relative deprivation'. He argues that the (perceived) widening of deprivation – the gap between wealthy and poor – can lead to frustration among those for whom conditions are not improving, with potential adverse consequences for health.³⁷ Wilkinson has focused on

the ways in which income inequality may affect health through disrupting the social fabric of society. Social cohesion and tight-knit social relationships have been shown to break down as inequality grows.

This can exert a negative impact on public health.³⁸ The Marmot Review notes that people on low incomes refrain from purchasing goods and services that can improve or maintain health, perhaps because they cannot afford, or do not see the benefit of, them. They may also feel that they have no alternative but to buy cheaper goods and services that can increase health risks.¹

Researchers from the London School of Hygiene and Tropical Medicine have worked to fill the gap in the minimum income requirements literature and have proposed the concept of 'minimum income for healthy living' (MIHL).³⁹ The concept is based on assembling the current best evidence in health needs while estimating the minimal costs entailed in meeting them for defined population groups. Components of the MIHL include physical activity, housing, psychosocial relations/social inclusion, personal transport, medical care and hygiene.³⁹ One of the Marmot Review's key recommendations is 'to develop and implement standards for minimum income for healthy living'.¹ This should reduce the numbers in persistent and reoccurring (child) poverty while reducing 'adverse health outcomes attributable to living on low incomes'.¹

3.7 Poverty and family composition

Certain groups are over-represented among families experiencing income poverty. Data from the HBAI series from 2009/10 indicate that 31 per cent of children in lone-parent families live in 'low-income and materially deprived households' compared to 11 per cent of children in families with two adults.³⁴ Overall, the percentage of lone-parent families with children in poverty is declining: of those children living in absolute low-income households (before housing costs), 26 per cent were in lone-parent families in 2009/10 compared with 43 per cent in 1999/2000.³⁴ Over the same period, of those children living in absolute low-income households (before housing costs), the percentage where two adults are both not in work has risen from 17 per cent in 1999/2000 to 23 per cent in 2009/10.³⁴ Children from black and minority ethnic families are almost twice as likely to experience material deprivation as children from white families: in 2009/10, 29 per cent of children living in households with an income below 70 per cent of the contemporary median income (before housing costs) were black or black British; 28 per cent were Asian or Asian British; and 15 per cent were white.³⁴ Twenty-seven per cent of children falling into the low-income and material deprivation category in 2009/10 had at least one adult family member who was disabled.³⁴

Particular groups are also over-represented among families experiencing persistent poverty – living below 60 per cent of median equivalised net household income in three out of the last four years before housing costs. Statistics from the DWP from the 'low

income dynamics' dataset shows that, between 2005 and 2008, 38 per cent of children in workless households, and 23 per cent of children in lone parent families, experienced persistent poverty, compared with 12 per cent of all children.⁴⁰ Risks are particularly apparent for the children of teenage mothers, as well as for the mothers themselves. Using data from the MCS, Mayhew and Bradshaw reported in 2005 that teenage mothers were over three times more likely to live in poverty than mothers in their thirties.^{21,41} Mothers living in poverty are more likely to give birth to low birth weight babies; a factor which is associated with poorer long-term health and educational outcomes.¹ The 2010 Teenage Pregnancy Strategy acknowledges that the infant mortality rate for babies born to teenage mothers is 60 per cent higher than for babies born to older mothers.⁴²

The health of the mother is also adversely affected: teenage mothers have three times the rate of postnatal depression of older mothers; are at a higher risk of poor mental health for three years after the birth; and are less likely to finish their schooling, with the consequent risks of unemployment.⁴²

There is additional evidence that income has a direct impact on parenting and on children's health and wellbeing. Yeung and colleagues posit that a low family income may be detrimental to children's development because of its association with parents' non-monetary capacities, including their emotional wellbeing and interactions with their children.⁴³ Hardships are hypothesised to increase maternal emotional distress which, in turn, is associated with an increase in harsh parenting practices. Research conducted in 2007 concluded that '[H]olding constant other types of parental capital, income is strongly associated with the types of maternal psychological functioning that promote self-esteem, positive behaviour and better physical health in children.'⁴⁴

Between 2003 and 2011, the average cost of raising a child from birth to 21 years increased by 55 per cent from £140,389 to £218,024.⁴⁵ The most expensive ages for raising a child are between five and 10 years, when children are regularly growing out of clothes and shoes.⁴⁰ Costs also vary regionally: in 2011 the cost of raising a child in the north east was £202,383, compared with £239,535 in outer London.⁴⁵ These burdens are inequitably borne by mothers. Dixon and Margo have shown that women who have children at younger ages and are low skilled seriously reduce their lifetime earnings: the 'fertility penalty' – the difference between the average lifetime earnings for a childless, low-skilled women compared with a low-skilled woman with two children – is £334,000.⁴⁶ The comparable figure for a high-skilled woman is £19,000. As Dixon and Margo acknowledge, this difference not only reduces a women's social mobility, it also makes child poverty considerably harder to reduce since child poverty is the result of living in households with low income.⁴⁶

It is clear that large numbers of children are living in households on less than adequate incomes and that it is families, and particularly lone parents, who are most at risk of falling into poverty. There is a real need to focus attention on mechanisms by which to reduce the financial and other risks for those with children.

3.8 Reducing inequalities in health

This chapter considers the substantial evidence that a number of factors influence health in the early years of life and that these factors may also affect health in later life. There is currently less evidence available on effective interventions that may be utilised to prevent ill health and to reduce inequity. It is on this area that future policy must now concentrate.

The evidence that is available can be used to predict what is likely to succeed where there is no direct evidence of efficacy. A comprehensive approach to this problem is likely to be required and interventions are needed in areas other than health services. The point made throughout the Marmot Review, and reiterated in this chapter, is that laying good foundations during a child's early years is crucial to reducing health inequalities across the life course.¹ Intervention studies in the early years suggest that performance in two basic domains of child development, the cognitive (education) and the social-emotional (parenting) can be modified in ways that should improve long-term outcomes.⁴⁷ The interventions identified for particular problems, in many cases, have beneficial effects for a range of problems, and can therefore be said to be of benefit more generally for the health and wellbeing of many young children. Responsibility for the interventions identified frequently cut across the remit of many organisations and Government departments. It is clear that any successful intervention will need a multi-sectoral approach.

There are many interventions that could protect against inequalities both generally and in health. Some interventions have been more robustly evaluated than others: not all projects and services will have the time, money and expertise to evaluate the impact of their work on children's health in sophisticated ways. This chapter does not exclude projects that do not include rigorous evaluations of effectiveness of the sort described above. Many projects may not collect specific outcome data relating to children's health but on theoretical grounds are highly likely to have a beneficial impact on family wellbeing. Projects of this sort are considered and, where evidence of effectiveness has been demonstrated more substantially, this is highlighted.

In terms of factors that could protect against inequalities, the Carnegie Task Force on meeting the needs of young children concluded that the following could be considered 'protective' in early years:

- temperament and perinatal factors (such as full-term birth and normal birth weight): having characteristics that attract and encourage care giving;
- dependable caregivers: growing up in a family with one or two dependable adults whose child-rearing practices are positive and appropriate;
- community support: living in a loving, supportive and safe community can limit the risk to health.⁴⁸

It appears that educational interventions and family support offer the best means yet identified of protecting children from inequalities and therefore for protecting their health. Support can take several different guises, it can be interpersonal or emotional, practical (child care or safe environments) or financial. There is now a considerable body of experimental knowledge which suggests that the effectiveness of interpersonal 'support' depends on the supporters' capacity to enable parents to feel less isolated, less criticised and less vulnerable. Whether the support is effective depends upon the interpersonal skill of the person doing the support; on working in a way that is accepting, encouraging, valuing and empowering.

3.9 Educational interventions

From the late 1990s onwards, the UK saw a significant expansion in the provision of early years education and care. This was based, in large measure, on a clear appreciation that the development of early cognitive ability is associated with later educational success, income and better health but that it is those children from the most disadvantaged backgrounds who are more likely to begin school with lower cognitive, emotional, and social capabilities.^{49/50}

The most well-known and researched early years programme to emerge in the UK is Sure Start. At its inception in 1999, Sure Start was an early intervention initiative aimed at developing and enhancing the services provided for households in relatively small, deprived areas in order to improve the health and wellbeing of young children.⁵¹ Recognising that the delivery of health services for children was often fragmented, with responsibility spread across the NHS, social services, schools and the voluntary sector, Sure Start was purposefully designed to bring different support agencies together in one place, to meet children's needs. By 2011, there were more than 3600 Sure Start Children's Centres across England. The centres are aimed at pregnant women and continue supporting women and their children until they reach primary school age. While each centre is autonomous, and designed with the needs of the local community in mind, all centres are expected to provide certain core services. These include: advice on child and family health services; family and parenting support; high quality childcare and early learning; access to specialist services such as speech and language therapy and budgeting advice; and help for parents and carers to access work and training opportunities.⁵²

Evaluations of the effectiveness of Sure Start have produced varying results. In 2008, Melhuish and colleagues compared the wellbeing of 5,883 three-year-old children and their families living in Sure Start areas with 1,879 children from non-Sure Start areas; the second group of children was identified from the MCS. Children and families from the Sure Start area showed five beneficial effects associated with living in that area and no adverse effects.⁵³ These included better social development, with children displaying more positive behaviour and greater independence than those in non-Sure Start areas. The risk of negative parenting was also lower in Sure Start areas while provision of a more stimulating home environment was higher. Families living in Sure Start areas also used more services designed to support child wellbeing than those from non-Sure Start areas.⁵³

An earlier study had shown that the effects of living in a Sure Start area 'varied with the degree of social deprivation'.⁵¹ While children from relatively less socially deprived families benefited from living in a Sure Start area, those from relatively more socially deprived families – particularly those headed by teenage mothers, lone parents, or workless households – were adversely affected. The National Evaluation of Sure Start reports that the children of teenaged mothers (14% of the sample) scored lower on verbal ability and social competence and higher on behavioural problems than their counterparts in non-Sure Start areas.⁵⁴ Children from workless households (40% of the sample) and children from lone-parent families (33% of the sample) growing up in Sure Start areas scored significantly lower on verbal ability when compared to children from non-Sure Start areas.⁵⁴ The findings suggest that early intervention has produced greater benefits for the moderately disadvantaged than for the severely disadvantaged. It should be noted that overall more children and families were affected beneficially than adversely.⁵⁴

When interpreting these results it is also necessary to keep in mind that Sure Start programmes have been in operation for less than a decade in the majority of areas, inhibiting longitudinal evaluative research. The High/Scope Perry pre-school programme began in the Ypsilanti, Michigan, school district, in 1962.⁵⁵ The programme identified 123 low income African-Americans, aged three and four years, who were assessed to be at a high risk of school failure. The group was then split; 58 received a high-quality pre-school programme while the remaining 65 did not receive a pre-school programme. Data on both groups was collected annually from ages three to 11 years and again at ages 14, 15, 19, 27 and 40 years. The study found that, at age 40, those who had been through the pre-school programme were more likely to have graduated from high school than the control group (77% compared to 60%).⁵⁵ A marked sex difference was also discernible: while 46 per cent of women from the control group finished high school, the figure stood at 86 per cent among females who had attended pre-school.⁵⁵ Pre-school graduates, at age 27, were over twice as likely to own their own home, four

times more likely to earn a good income and five times less likely to have been in repeated trouble with the law.⁵⁶ See **Chapter 7** for a further discussion on Sure Start.

A good general education that provides a programme of personal, social and health education – or ‘life preparation’ – appears to help young women to avoid early pregnancy. Since the launch of the Government’s Teenage Pregnancy Strategy in 1999 the under-18 conception rate has fallen from 46.6 per 1,000 live births in 1998 to 40.5 per 1000 live births in 2008 – a reduction of 13.3 per cent over 10 years.⁴² International evidence has shown that sex and relationship education (SRE), together with accessible, young people-centred contraceptive and sexual health (CASH), have the strongest impact on reducing teenage pregnancy rates, both through delaying sexual activity and through increasing the use of contraception.⁴² The Government’s 2010 Teenage Pregnancy Strategy has placed both SRE and CASH at its core, while at the same time attempting to tackle those factors that increase the risk of teenage pregnancy including poverty, poor educational attainment, and low aspirations.⁴²

3.10 Family support

In terms of psychological health, prenatal and infant development programmes have been assessed, with most programmes consisting of home visiting at-risk families.

There is now strong evidence that intervention during a child’s early years, particularly through the provision of skilled home visitors, can provide the type of support necessary to improve the health of the child, as well as their cognitive development.⁵⁷ In the UK, the HCP is the universal, early-intervention and prevention, public health programme. It offers all families screening tests, immunisations, developmental reviews and information and guidance to support parenting and healthy choices. Recognising that poor health outcomes are experienced by children in the most at-risk families, the HCP has recently increased its focus on vulnerable children and families, to ensure that this group receives a personalised service.⁵⁸

More targeted, specialised support is offered through the Family Nurse Partnership (FNP) Programme in England. This is a preventive programme designed for vulnerable, young, first-time mothers. Through offering intensive and structured home visiting, delivered by specially trained nurses, from early pregnancy until the age of two years, the programme helps young parents to build supportive relationships, adopt healthier lifestyles for themselves and their babies, and provide good quality care. By 2015, the Government aims to more than double the capacity of the programme from 6,000 clients at present to 13,000 clients.⁵⁹ Early evaluations of the programme have produced promising results: the most recent, published in 2011, reported that graduates of the FNP were positive about their parenting capacity and their ability to provide a high level of warmth and a low level of harsh discipline.⁶⁰ Such factors make a difference. Analysing data from the MCS, Lexmond and Reeves found that parents who are able to combine

warmth with consistent control and discipline were more likely to have children who, by the age of five years, had a good attention span, showed concern for other people's feelings, and were confident.⁶¹

Other reported short-term benefits of the FNP include increased use of contraception, with 84 per cent reporting using birth control six months after giving birth. Of the 850 clients with data, 105 (12%) had given birth to a second child; this is lower than found in the Memphis trial of FNP where the comparable figure was 22 per cent.⁶⁰ The number of clients involved in education was also encouraging: more than one-quarter were enrolled in education or training after their child's birth, half of whom had not been in education at the start of the programme.⁶⁰ More anecdotal evidence also suggests that children's behaviour, communication and language skills were all improving. It is anticipated that firmer evidence will be provided by the forthcoming randomised control trial of the FNP, which will provide the proper basis from which to judge the outcomes of the programme.⁶⁰

Programmes designed to reduce the incidence of child abuse and neglect have also shown some success. A growing body of evidence indicates that interventions aimed at improving parental disciplinary practices and sensitivity can measurably lower abusive behaviour and improve family wellbeing.⁶² The Incredible Years programme teaches parents to replace physical discipline and punishment with more positive, effective methods for managing unwanted behaviour. Versions of the programme have been rolled out in a number of OECD countries. An evaluation of its effects on families in Eastern Canada found that mothers who maltreated their children learned how to be more constructively involved with, and care about, their children.⁶³

The Nursing Family Partnership (NFP) – as practised in the United States – has been repeatedly shown to be one of the most effective programmes in reducing child abuse. A randomised controlled trial in Elmira, New York ($n=400$) reported a 56 per cent fall in emergency department visits for accidents and poisonings during the second postpartum year among families who were provided with a nurse-home visitor throughout pregnancy and until the child was two years of age when compared with the control group.⁶⁴ A subgroup of nurse-visited women, including single, low-income, teenage mothers who were identified to be at the highest risk, had 80 per cent fewer incidents of verified child abuse and neglect, although this was not shown to be statistically significant ($p=0.07$).⁶⁴

The Incredible Years programme also meets the National Institute for Health and Clinical Excellence (NICE) guidelines for parenting programmes for the effective treatment of conduct disorders in non-abusive families. The National Academy for Parent Practitioners notes that less than 10 per cent of over 150 known approaches currently used in England have good evidence of effectiveness.⁶⁵ Such programmes also vary greatly in

terms of the content and quality of their materials, the sophistication of training available for practitioners, and the delivery of the programme.⁶⁵ This is particularly important given that the quality and consistency of delivery has been identified as crucial to the effectiveness of parenting support programmes.¹

Despite some promising results, evidence of what works in reducing child maltreatment and improving parenting practices remains limited, particularly when compared with other paediatric public health programmes.⁶² It is clear that there is a need for long-term personal contact with at risk families. Current spending on early intervention is low: national estimates have put prevention spending at 4 per cent of total health spending.⁶⁶ The OECD reports that for every £100 spent on early childhood (0 to five years) in the UK, £135 is spent on middle childhood (6 to 11 years) and £148 is spent on late childhood (12 to 17 years).⁶⁷ Intervention does not always have to be costly. A BMA report, published in 2011, highlighted evidence that improving health and wellbeing during a child's early years can be inexpensive: when children are cuddled, talked to regularly and read to daily, they thrive emotionally and improve their intelligence quotient (IQ) score.¹³ The challenge for the state is how to encourage these types of changes. The overriding message in a 2011 independent report to Government on early intervention is that effective programmes have positive socioeconomic returns.⁶⁸ The total cost of inaction – of failing to invest in early years intervention programmes – could mean that the UK economy misses out on returns of an estimated £486 billion over 20 years.⁶⁹ As the Committee on Economic Development explained over 25 years ago, 'improving the prospects for disadvantaged children is not an expense but an excellent investment, one that can be postponed only at much greater cost to society'.⁷⁰

3.11 Recommendations

- Research into methods to reduce the impact of social inequalities in child health and wellbeing should continue. Where examples are found of initiatives that can make a difference, these should be rapidly rolled out. Examples such as Sure Start should be considered and the elements that made some programmes effective copied into all programmes and made universally available, with particular efforts made to ensure that all populations are reached, including the traditionally hard to reach. This will require a commitment to invest in the development and maintenance of Sure Start and other programmes.
- Pilot programmes of interventions should be implemented, assessed and rolled out if effective. Interventions, for example, to ensure a higher percentage of children are ready for school at school starting age, should be undertaken. Where positive results are seen, the activity or intervention should be widely promulgated and implemented in areas with the same problem. All research-implementation cycles should be subjected to surveillance to measure efficacy.
- Investment in improving the quality of social and other housing is essential to improving health and wellbeing of children and adults. Addressing the causes of fuel

poverty is a key component. Local Government must make health and wellbeing a priority within its housing policy, and report annually on progress to achieving a housing stock that is conducive to the health of housing occupants.

- Health and local authorities should contribute to the work area, and press government for action once an agreed figure is available.
- Community and family support schemes require ongoing investment to reduce adverse impacts on child health and wellbeing. Local and national governments must be helped to understand that interventions may take time to have an effect, and that consistent and reliable funding must underpin evidence-based interventions.
- The high levels of all types of poverty experienced in the UK, including by children, are unacceptable. Society in the UK should expect its Governments to take more effective action to reduce the social, and therefore the health inequalities, currently experienced. Work on the MIHL should inform Government's policy on benefit reform. Health professionals should lobby actively on ensuring a healthy living basis to minimum income protection.
- Partnerships between community, family and educational support schemes should be encouraged.

