



**Breaking the dependency cycle**

Tackling health inequalities of vulnerable families

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**Deloitte Centre for Health Solutions**

The Deloitte UK Centre for Health Solutions is the research arm of Deloitte LLP's healthcare and life sciences practices. Our goal is to identify emerging trends, challenges, opportunities and examples of good practice, based on primary and secondary research and rigorous analysis.

The Centre's team of researchers seeks to be a trusted source of relevant, timely, and reliable insights that encourage collaboration across the health value chain, connecting the public and private sectors, health providers and purchasers, patients and suppliers. Our aim is to bring you unique perspectives to support you in the role you play in driving better health outcomes, sustaining a strong health economy and enhancing the reputation of our industry. In this publication, references to Deloitte are references to Deloitte LLP, the UK member firm of DTTL.

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# Foreword

Welcome to the Deloitte Centre for Health Solutions report *Breaking the dependency cycle: Tackling health inequalities of vulnerable families*, which examines how the social determinants of health impact health inequalities across Western Europe.

Our approach includes a synthesis of the large volume of existing academic and policy research on health inequalities and social determinants of health, an analysis of the numerous national and international datasets of health metrics and identification of evidence-based good practice examples. This has provided us with a degree of understanding of this highly complex issue. It also highlighted that as far as high-income countries are concerned, there is more in-country variation in health inequalities than between country variation.

Given the huge body of research on the subject, this report sets out to examine the challenges facing Western Europe in reducing health inequalities through the lens of some of society's most disadvantaged people, where failure to address the causes and effects of health inequalities has led to distinct groups of vulnerable and troubled families.

We have developed a set of personas that represent the different members of a 'typical' vulnerable family. By focusing on this relatively small, but economically important group of disadvantaged people we have also been able to explore the impact of intergenerational levels of social deprivation. Our hypothesis is that if you can identify the systems, processes and interventions that could help countries tackle the challenges of their most vulnerable members of society, these same approaches could help improve health inequalities more generally.

Consequently, our insights are presented in a way that is intended to be deliberately different, provocative and thought-provoking to stimulate debate and discussion on the extent to which the challenges and solutions that we identify might apply at a country level.

We hope that the report encourages actions that not only address the needs of vulnerable families everywhere, but also help to reduce overall health inequalities.

As always we welcome your feedback and suggestions for future research topics.

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# Executive summary

Across Western Europe the marked increase in life expectancy in recent decades is not always correlated to life spent in good health; indeed, the greater the income disparities within a country the greater the health and social inequalities. Conventional explanations for health inequalities, such as lack of access to medical care and unhealthy lifestyles, provide only part of the explanation. The more intransigent causes are the social determinants of health, including access to and opportunities in education, employment, housing, public transport and welfare services.

All countries, whatever the maturity of their health and social care services, experience varying levels of in-country health inequalities, with excess mortality and reductions in healthy life years correlated to regional deprivation.

Across all Western European countries, 'vulnerable' or 'troubled families', defined as those that are in contact with several departments of the local authority, including the child or youth welfare system, are a growing concern. These families rarely succeed in breaking the negative spiral, which leads to persistent poverty, deprivation and transgenerational dependency on public support. Living in vulnerable families accentuates the risks of poor life outcomes for those most dependent on family structures, especially children and adolescents. The current failure to address the social determinants of health for these vulnerable families is creating avoidable cost and social pressures on society.

The report illustrates how taking a life cycle approach to vulnerable families can improve targeting, prioritisation and impact of services at all stages of life. It provides current research evidence as well as good practice examples focussed on:

- maternity and infancy – providing a strong foundation for the rest of life
- childhood and adolescence – establishing healthy behaviours and building resilience
- adulthood and working life – creating the conditions for a productive life
- elderhood and increasing frailty – achieving equality in length and quality of life
- an integrated, whole system approach – improving outcomes at all life stages.

Giving each child the best possible start in life is likely to deliver the best societal and overall health benefits. However, breaking the cycle of dependency for future generations also requires improvements in the living and working conditions of adult and elderly family members.

Deloitte believes that addressing inequalities for the most vulnerable members of society will lay the foundation for reducing health inequalities more generally and that sustainable change is achievable if all policy makers, public service providers, agencies and other stakeholders are prepared to:

- work across institutional and professional boundaries and with the wider public sector to take collective decisions on how and where to invest in joint actions to achieve better outcomes
- take a coordinated, case management approach with a community-based gatekeeping point for accessing services
- deploy analytics and digital technology effectively in both the planning and provision of services
- provide appropriate levels of health and social care funding, based on economic evaluation of cost-benefits and consider introducing new models of integrated funding and aligned incentives across all parts of the system.

Across all countries in Europe there is significant scope to work together more effectively to tackle the social determinants of health and reduce health inequalities. This is a moral and economic imperative, if countries are to provide an equitable, secure, and healthy future for everyone.

All countries, whatever the maturity of their health and social care services, experience varying levels of in-country health inequalities, with excess mortality and reductions in healthy life years correlated to regional deprivation.

# The 'not so fun' facts of health inequality

## The high price of health inequality



Healthcare only determines

**15-25%**  
of health outcomes.



Health inequalities account for an estimated 20% of European healthcare costs (€177bn).



Urban environments have a **20** year life expectancy gap along the social gradient



## Vulnerability across the life cycle

### Maternity and infancy

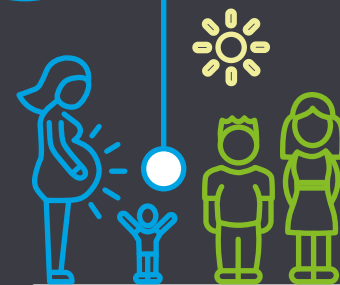
In the UK infant mortality is more than **twice as high** in the lowest compared to the highest socio-economic groups.



A child's life expectancy rises when they turn **1**, meaning their **first year is the most vulnerable**.



Each extra year of education received by mothers leads to a **7-9% reduction in mortality** among children under **5**.



### Childhood and adolescence

European children with the **highest educational attainment** can expect to live **5.6 years longer than the lowest**.



**Most deprived**   **Most affluent**



**40%** of children in England's **most deprived areas** are overweight, but only **27%** in **most affluent areas**.

In the EU health inequality contributes to

**700,000** deaths and **33m** cases of ill health.



Health inequalities cut **1.4%** of European GDP (€146bn) off **labour productivity** each year.

Danish research shows

**10%** of the most vulnerable **social-benefit recipients** account for...

... **46%** of spending.



## Adulthood and working age



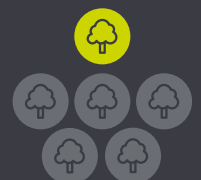
Workers in **low-paid jobs** are more **exposed to health risks**.

Every **1%** rise in European unemployment from 1970-2007 fuelled a **0.79%** increase in working-age suicides.



In Denmark, **smoking and alcohol-related deaths** account for **64%** of social inequality in mortality in men.

Most deprived **10%** of communities in England have **5** times less green space than the most affluent 20%.



## Old age



Older people in lower socioeconomic groups are **30-65%** likelier to face **chronic disease**.



Higher housing deprivation is linked to **fewer remaining healthy life years** at 65.



**69%** of Europeans without basic digital skills are **over 55**.

Older people with the lowest incomes are **5** times less likely to use the web than the highest.



# Health inequalities and the impact on vulnerable families

“Life ... forms a long, unbroken chain of generations, in which the child becomes the mother and the effect becomes the cause.”

**Rudolf Virchow, 1858<sup>1</sup>**

The WHO (World Health Organization) defines health as “a state of complete physical, social and mental wellbeing, and not merely the absence of disease or infirmity”; health also includes people’s ability to lead a socially and economically productive life.<sup>2</sup>

Traditionally, health outcomes have been evaluated by measuring life expectancy at birth and at 65. During the twentieth century, life expectancy rose dramatically among the world’s wealthiest populations from around 50 to over 75 years, driven by improvements in public health, nutrition and medicine, including:

- immunisation programmes and antibiotics that greatly reduced childhood deaths
- increases in health and safety that reduced risks in manual workplaces
- a reduction in the number of people who smoked.

Life expectancy at birth now exceeds 84 years in Japan and is around 81 years in most Western European countries. The continuing increase in life expectancy is due almost entirely to the decline in late-life mortality as a result of substantial progress in reducing mortality from heart disease, stroke, smoking and further causes amenable to medical intervention.<sup>3</sup>

## Understanding health inequalities

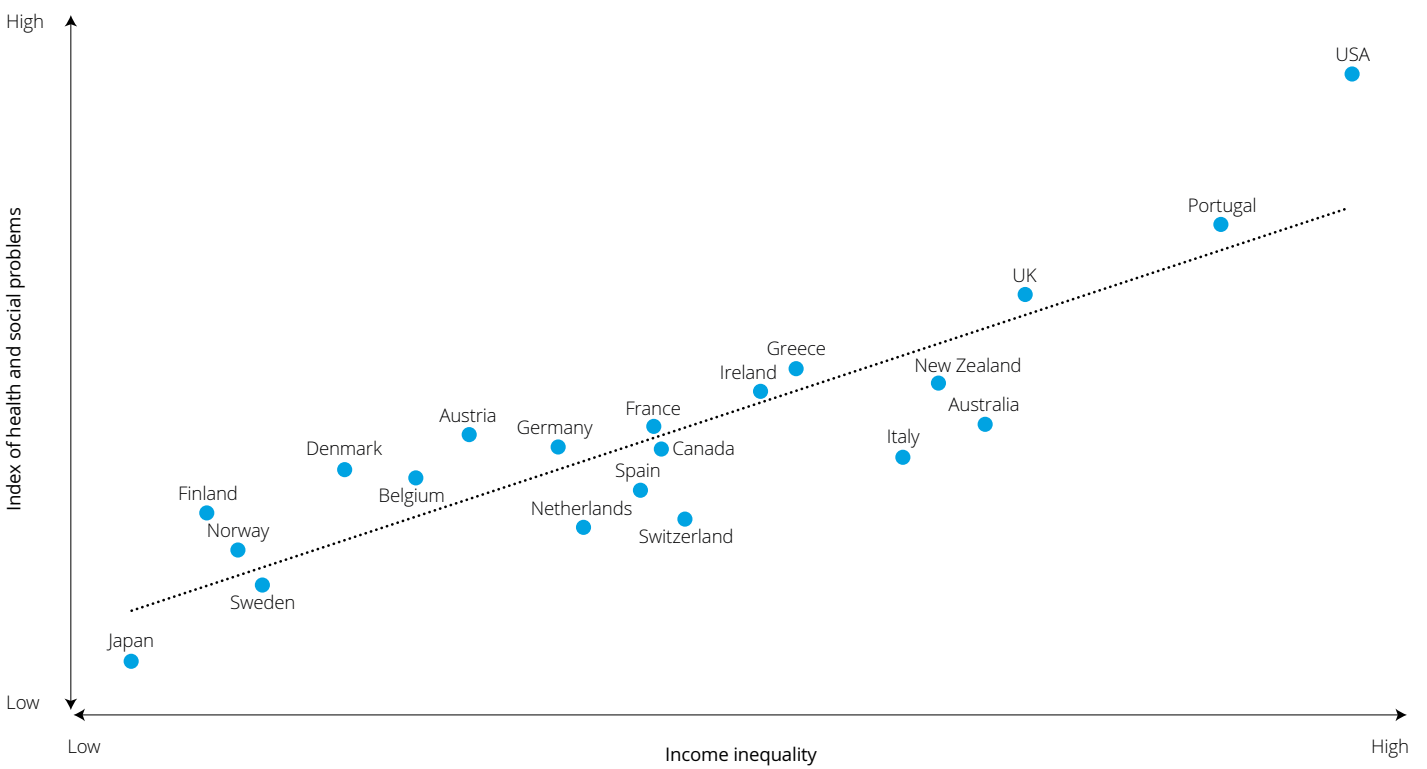
Increasing life expectancy, however, is not always correlated to life spent in good health. People are living longer but often with multiple, complex long-term illnesses. As a result, indicators such as healthy life years (HLY) are used as an important measure of the relative health of populations in the EU. Between 2010 and 2014, there were virtually no gains in HLYs for men and women in many EU countries and in some countries there has been a decline.<sup>4</sup>

Although most Western European countries have experienced an improvement in life expectancy, they have also seen a marked increase in social inequality over recent decades. A country comparison illustrates that the greater the income inequality within a country, the greater the health and social problems, which is partially due to reduced social cohesion within societies (see Figure 1).<sup>5</sup>

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**Figure 1. Health and social problems are worse in more unequal countries**



Source: The Spirit Level, 2009

Health inequalities are a result of a variety of interrelated and overlapping factors. There is an important distinction between health inequalities that are intrinsic (for example genetics) and those that are

the products of social systems and structures, privilege and power, and that are potentially avoidable (known as health inequities).

**Figure 2. Determinants outside of healthcare and beyond individual control shape health outcomes**

Figure 2a. Determinants of healthcare and their contribution to health outcomes

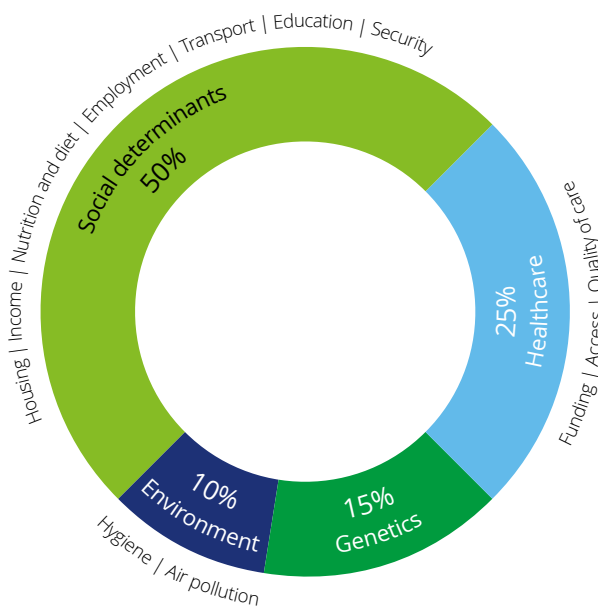
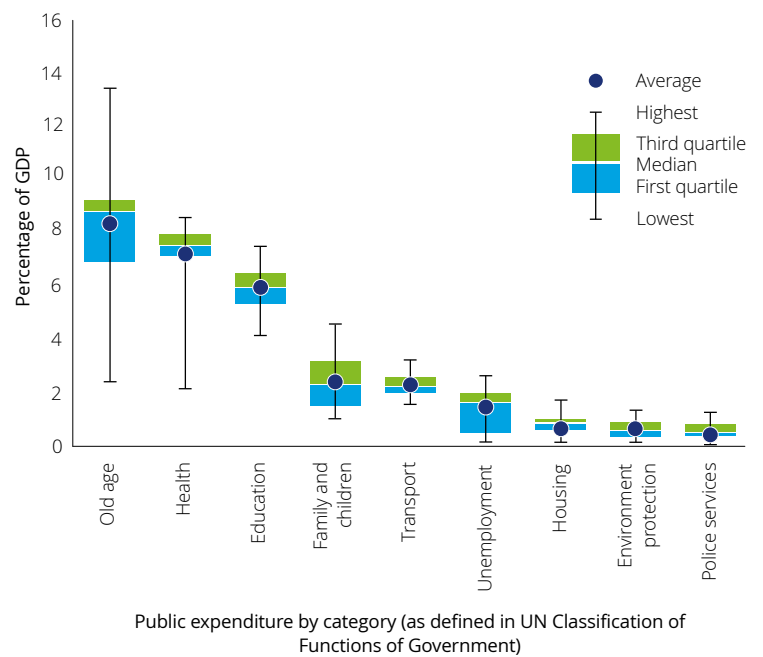


Figure 2b. Average general public expenditure on selected determinants of health (as a percentage of GDP) in Western European countries



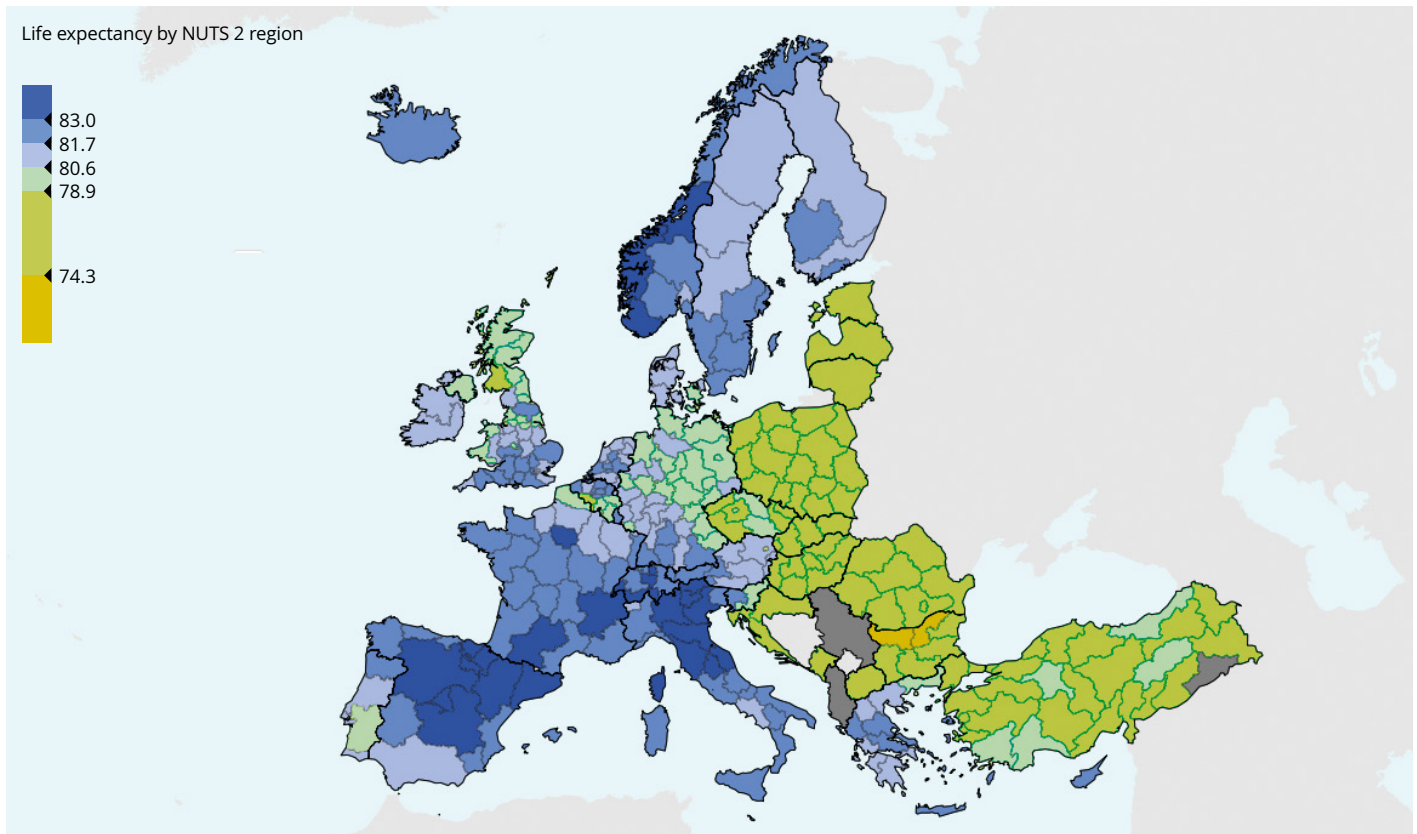
Source: Deloitte Centre for Health Solutions, 2017; Eurostat, 2015

Conventional explanations for health inequalities, such as lack of access to medical care and unhealthy lifestyles, only partially explain differences in health status.<sup>6</sup> Research shows that at most 15-25 per cent of health outcomes are determined by healthcare (see Figure 2a).<sup>7,8,9</sup> Analysis of Eurostat data shows that healthcare and old age receive the largest overall share of public expenditure (see Figure 2b).<sup>10</sup>

Health inequities are influenced by individual lifestyles, availability of social support networks, working and living conditions, including access to and understanding of benefits of education, employment, healthcare, nutrition, welfare services, housing, public transport and amenities. These are commonly referred to as the social determinants of health (SDOH) – the conditions in which people are born, grow up, live, work and grow old. The SDOH are shaped by a set of inextricably linked economic, political and environmental forces, exerted at a global, national and local level.<sup>11</sup>

Poverty and deprivation occupy centre stage when considering what creates health and social inequality. Moreover, an increased understanding of epigenetics means we now know that social and genetic causes of disease are not mutually exclusive. For example, a specific disease-causing gene may be expressed only in the presence of triggers from SDOH.<sup>12, 13, 14</sup>

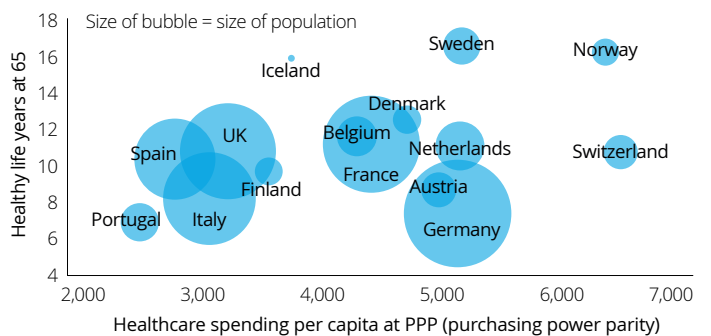
**Figure 3. In-country variation of life expectancy aligns with areas of socioeconomic deprivation**



Source: Eurostat, 2015

Health inequalities may seem obvious when comparing high-income with low-income countries, however, in-country health inequalities exist in all countries, regardless of the individual maturity of their health and social care systems. While high-income economies, with more mature health and social care systems generally spend significant resources to improve the health and social status of their populations and might be expected to have reduced the health inequalities gap, the opposite is often true. Figure 3 illustrates the inequality in life expectancy in Europe, with most regions of excess mortality aligning with higher regional deprivation.<sup>15</sup> The relationship between how much countries spend on healthcare and health outcomes measured by HLY is complex, and spending is only a small determinant of outcomes (see Figure 4).<sup>16, 17</sup>

**Figure 4. Relationship between per capita healthcare spending and healthy life years at 65**



Source: OECD, 2014; World Bank, 2015

A recent study of mortality data from 11 European countries examined mortality rates from 1990-2010 by level of education and occupational class to determine whether government efforts at reducing health inequalities in Europe have made a difference to mortality inequalities by socioeconomic group. The study measured inequalities in absolute and relative terms, and found that there was a substantial decline in mortality in lower socioeconomic groups in most European countries. Relative inequalities in mortality widened almost universally due to percentage declines generally being smaller in lower socioeconomic groups (absolute declines were often smaller in higher socioeconomic groups). Moreover, although several countries had developed and implemented national programmes to tackle health inequalities, countries with or without national strategies did not systematically differ in their mortality inequality trends.<sup>18</sup>

The failure to effectively and consistently address the social determinants of health is creating avoidable cost and resource pressures on healthcare systems in Europe.

### The cost of avoidable inequalities

In economic terms, health can be considered as both a capital and a consumption good:

- health as a capital good considers that people in good health command a higher economic value than those in poor health as a result of their ability to be economically productive
- health as a consumption good is concerned with the contribution that good health makes to a person's happiness, wellbeing or satisfaction.<sup>19</sup>

Calculating the cost of inequality is inherently difficult due to limited research on costs. In 2010, an economic evaluation of Eurostat population mortality and morbidity data alongside European Community Household Panel data, estimated that inequality related losses to health in the EU-25 amounted to over 700,000 deaths per year and 33 million cases of ill health. These inequalities were estimated to be responsible for the equivalent of 20 per cent of total healthcare costs, or €177 billion, and 15 per cent of total spending on social security benefits. Health related inequalities were estimated to reduce labour productivity by 1.4 per cent of European GDP annually, or €146 billion, and the monetary value of health inequality related welfare losses is around 9.4 per cent of GDP, or €980 billion per year. The researchers concluded that the economic costs of socioeconomic inequalities in health in Europe are substantial and, although the calculations are subject to considerable uncertainty, the economic implications of health inequalities warrant significant investments in policies and interventions to reduce them.<sup>20</sup>

Research analysis published in the UK in 2014 found that the impact on the UK of some of the social consequences of inequality, including worse health outcomes, and higher levels of crime could cost the equivalent of over £39 billion a year. The health-related share of this is £12.5 billion due to reduced healthy life expectancy and £25 billion through poorer mental health.<sup>21</sup>

## The cause and effect of vulnerable families

**“Vulnerability is not the same as poverty. It means not lack or want, but defencelessness, insecurity and exposure to risks, shocks and stress.”**

Robert Chambers<sup>22</sup>

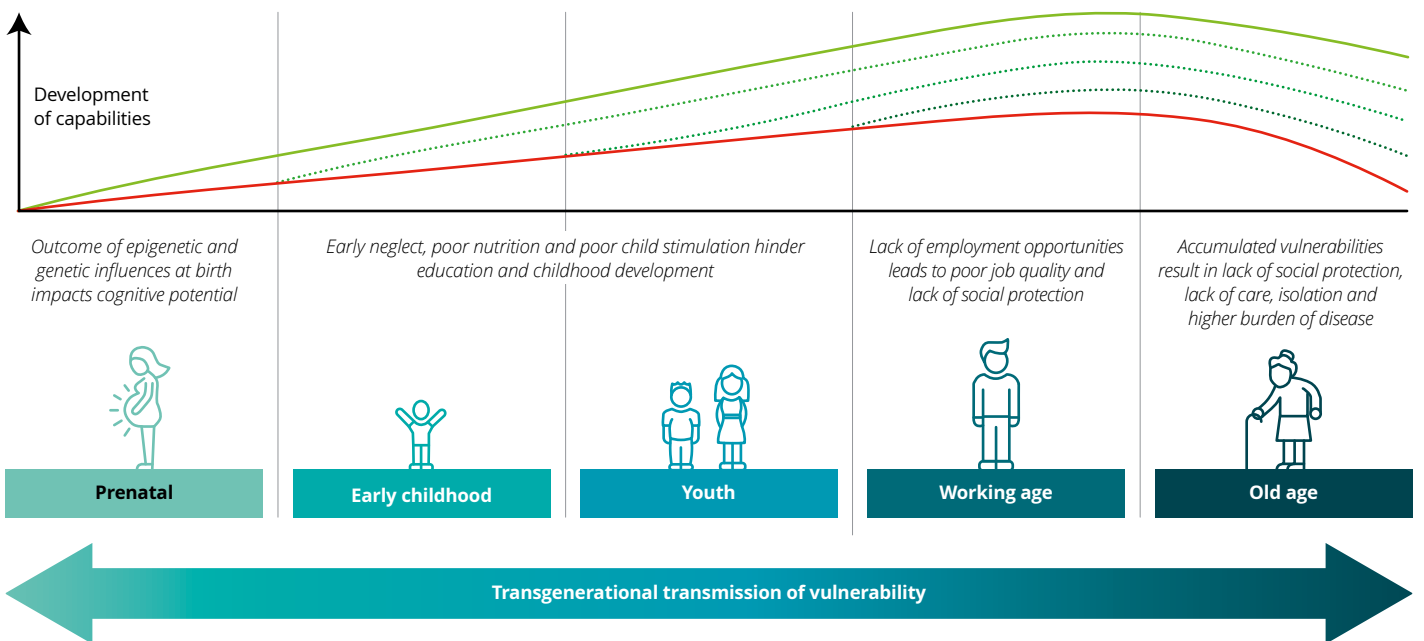
Traditionally, the concept of vulnerability is used to describe exposure to individual risks and the capability of people to manage risks and overcome adversity. While there is no single approach that defines vulnerability, the social determinants of health and wellbeing contribute crucially to vulnerability in all countries. Along the life cycle vulnerabilities overlap: the most vulnerable face numerous constraints that affect the individual's chances to develop capabilities for coping and social functioning. Research shows that the mental energies of the poor are disproportionately focused on coping with the here and now, leaving little room for planning ahead or engaging in activities that would help the economic and social development of the individual or immediate family members.<sup>23</sup>

Indeed, the combined experience of unemployment, economic and social disadvantage is often passed down from parents to children. For example, analysis of Danish population data indicates that a small minority of around 10 per cent of the most vulnerable social benefit recipients account for 46 per cent of the spending.<sup>24</sup> Children growing up in families where parents are unemployed, poorly educated, socially marginalised and likely suffering from poor physical and mental health are more likely to face a disproportionate level of physical, sexual and emotional abuse, mental and physical health issues.<sup>25</sup> They will also struggle to achieve their full potential, with negative consequences for their educational achievements, future employment opportunities and healthy life years.

Across all European countries family vulnerability is a growing concern.<sup>26</sup> ‘Vulnerable’ or ‘problem-troubled families’ are defined as those that are in contact with several departments of the local authority, including the child or youth welfare system. These families rarely succeed in breaking the negative spiral, which leads to persistent deprivation and transgenerational dependency on public support. Indeed, children and young people who are known in the social services system from childhood are overrepresented later in life in the benefit system.<sup>27</sup> This transmission of disadvantage is likely to cause the highest long-term cost, although it is not accurately quantifiable.<sup>28</sup>

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**Figure 5. Investment in early years enables the development of life capabilities and addresses the transmission of vulnerability**



— Life capability at full potential    ..... Depending on start point, interventions in later life can help to overcome impact of disadvantages to a varying degree  
 — Vulnerabilities accumulate across life cycle and result in lower overall functioning

Source: United Nations Development Programme, 2014

As Figure 5 shows, living in vulnerable families hinders the development of capabilities for those most dependent on family support structures, especially children and adolescents. Research shows that some periods of life are particularly important for the development of socio-emotional life functions, such as the very first years of a child’s life, and transition phases between education and working life.<sup>29</sup>

The interventions that are applied to try and tackle this issue often fail to create (measurable) value, due to fragmentation and siloed initiatives.<sup>30</sup> There is significant potential to introduce a more targeted preventative approach to tackle the challenges that perpetuate the problems of vulnerable families, especially in early life and during the teenage years.

### Methodology for this report

There is a huge volume of academic, social and policy research into the SDOH and health inequalities which demonstrates that inequalities in health outcomes are long-standing, deep-seated and difficult to change. This report focuses on using extensive literature reviews, analysis of national and international datasets and our experience working with health and social care policymakers, payers and providers across Europe. We analyse how different countries are tackling the challenge of improving health outcomes for vulnerable families and helping vulnerable families to improve their situation and reduce health inequalities. We believe that lessons learned in tackling the vulnerability of families could be applied more widely to help reduce health inequalities in society, improving the chances of living a healthy and productive life for all citizens.

The report illustrates how taking a life cycle approach to vulnerable families improves targeting, prioritisation and impact of services. It examines current research evidence and identifies good practice examples for:

- maternity and infancy periods
- childhood and adolescence
- adulthood and working life
- elderhood and increasing frailty
- an integrated, whole systems approach.

Effective action on reversing inequalities needs to involve a range of organisations from local and central governments, including education, housing, transport, environment, health and social care. Government policies need to embrace all of the social determinants of health and not focus on the healthcare sector alone. Unless the policy responses are aligned, they have the potential to unintentionally widen the health gap.<sup>31</sup>

This report shows solutions that highlight the need to bring together stakeholders in collective action to tackle health inequalities, identifying the strategies to:

- encourage wider adoption of good practice, including new ways of working
- develop more effective collaborations within and between health and social care
- improve outcomes for populations
- optimise the cost of providing care.

While there is a wide range of good practice to learn from, particularly in most Nordic countries and the UK, all countries have scope to reduce in-country variation.

Effective action on reversing inequalities needs to involve a range of organisations from local and central governments, including education, housing, transport, environment, health and social care. Government policies need to embrace all of the social determinants of health and not focus on the healthcare sector alone.

# The life cycle of vulnerable families

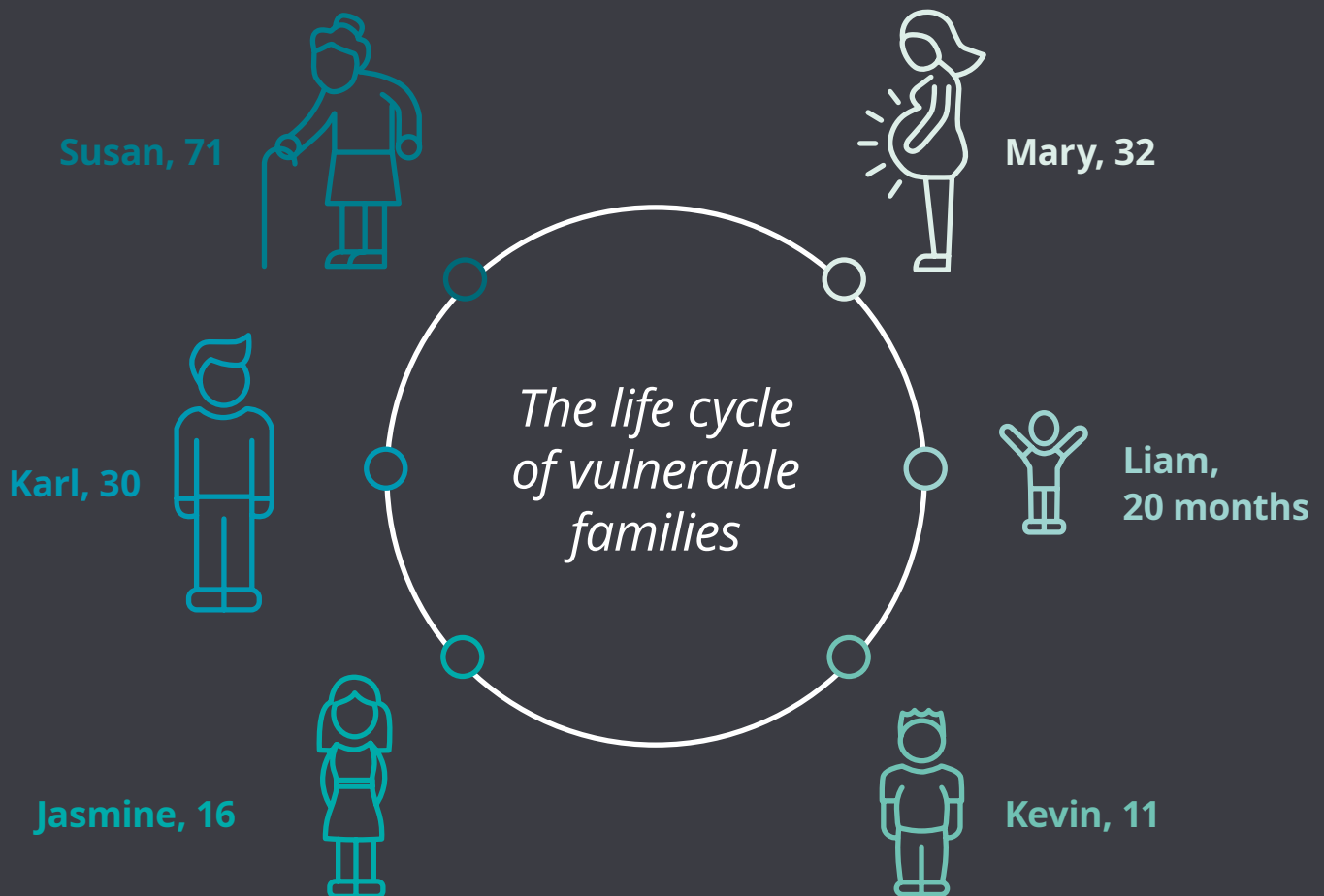
## Vulnerable children become vulnerable adults

### A life cycle approach

Throughout our research we identified common challenges and clusters of accumulated disadvantages that vulnerable families share across Europe. We have developed a family group of 'personas' to help demonstrate the variety of problems, motivations, behaviours and expectations that drive service demand. Our family personas are composites and are not intended to encompass all possible social scenarios in which vulnerable families lead their lives. They are, however, based on knowledge of real population trends and demographics, a wealth of academic literature and insight gained in projects, including in-depth discussions with providers of services to vulnerable families and analysis of social surveys.

Our research shows that the following characteristics contribute to significantly higher levels of vulnerability:

- younger average age at conception
- lower educational attainment in both parents
- social assistance at time of birth of children
- unemployment or low-paid irregular employment
- presence of at least one health problem, in many cases long-standing illness or disability
- mental health problems, including depression and alcohol dependency.







## Mary, 32

Having had her first child at 16, Mary left school early without any qualifications and has only ever had a series of low-paid temporary jobs. She relies on benefits to survive and is 25 weeks pregnant in her fourth pregnancy. Mary struggles to keep up her pre-natal appointments. She is trying to cut down on smoking, but still drinks heavily. Her midwife is concerned about preterm labour.



## Liam, 20 months

Liam was born to term. Following exposure to maternal smoking and alcohol consumption he was of low weight at birth. He shows signs of foetal alcohol syndrome, is a restless toddler and has been slower to achieve development milestones. He was recently admitted to hospital to have a milk tooth extraction.



## Kevin, 11

Kevin has no contact with his father. He has stopped going to a youth activity club in the community after experiencing the same bullying for being overweight as he did in school. In the last year he has missed 35 days of school and scored under the proficient mark in reading. Most of his day is spent online and he is less likely to finish primary education than many of his classmates.



## Jasmine, 16

Like Kevin, Jasmine has no contact with her father. In the first years of her life, Jasmine was cared for by her grandmother. Jasmine's teacher encourages her to choose science subjects to prepare for university, but Jasmine is struggling to study at home. Between the age of 14-16 Jasmine showed signs of bulimia nervosa.



## Karl, 30

When Karl learned of Mary's pregnancy he moved back into the two-bedroom terrace house with the family. He left school at 15, having been arrested for juvenile disorder. Throughout his life, Karl has been unemployed apart from occasional zero hours, short-term manual jobs. He lost his last job on a building site over an injury acquired in the workplace. A large share of his benefits is spent on alcohol and cigarettes, increasing his tendency to behave violently and he is still on probation following a short prison sentence for injuring a neighbour in a bar fight.



## Susan, 71

Susan worked in a series of low-paid jobs all her life. As a single mother to Mary and four older children a large part of her life has been spent supporting her family, both economically and as an unpaid carer. She relies on disability benefits and has no savings for her old age. Having been diagnosed with diabetes at 40, she suffered a stroke last year and due to reduced mobility is no longer able to work. Despite living nearby, she is also struggling to continue helping with the daily care for her grandchildren. Worrying about her family, she is neglecting herself, has missed her last two GP appointments and is feeling increasingly unwell and lonely.

# Maternity and infancy

## Providing a strong foundation for the rest of life

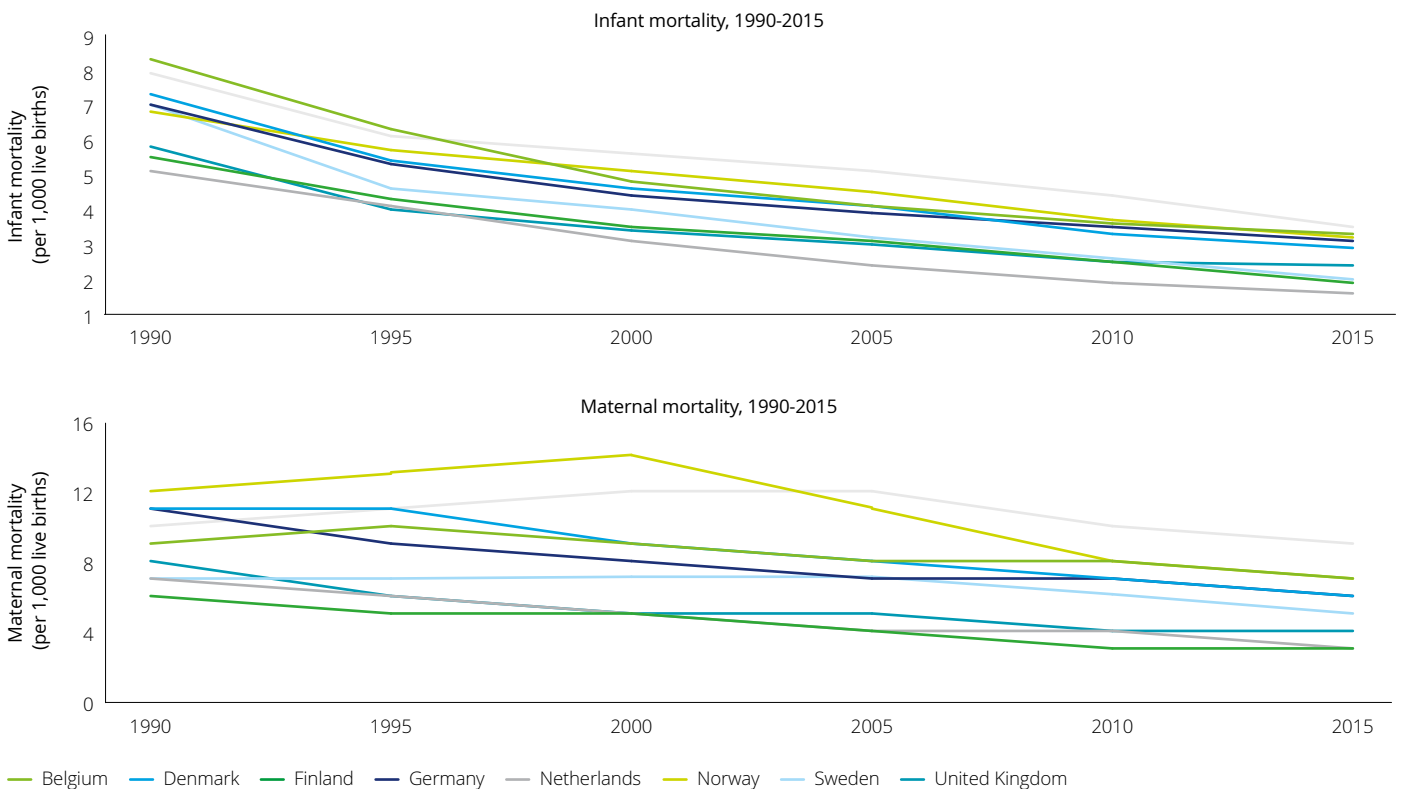


Adverse socioeconomic circumstances have a cumulative effect throughout a person's life. For example, low birth weight, which has a strong association with socioeconomic deprivation, can result in health and social disadvantages in both childhood and adult life. Life expectancy

changes during the lifespan: by the time a child reaches his or her first birthday, chances of living longer increase, indicating the vulnerability of early childhood. Provision of effective maternity care and support for early childhood development can help give children a better start and improve the chances of a long, healthy and productive life.

Over the past 17 years maternal mortality across Europe has improved from 35 deaths in 100,000 live births in 1990 to 16 deaths in 100,000 live births in 2015, and perinatal mortality has improved from 920 deaths in 100,000 live births in 1990, to 370 deaths per 100,000 live births in 2015.<sup>32</sup> Figure 6 shows that maternal and infant mortality is reducing over time in most Western European countries.<sup>33</sup> However, wide in-country variation in mortality and morbidity remains and across all countries, mothers and infants in lower socioeconomic groups have benefited to lesser extent from the reductions in mortality and morbidity.<sup>34</sup> For example in Scotland over a quarter of women in the most deprived areas acknowledged smoking during pregnancy, compared with 3.3 per cent in the least deprived areas. Across the UK infant mortality is more than twice as high in the lowest compared with the highest socioeconomic groups.<sup>35</sup>

**Figure 6. Maternal and infant mortality across Western European countries is declining**



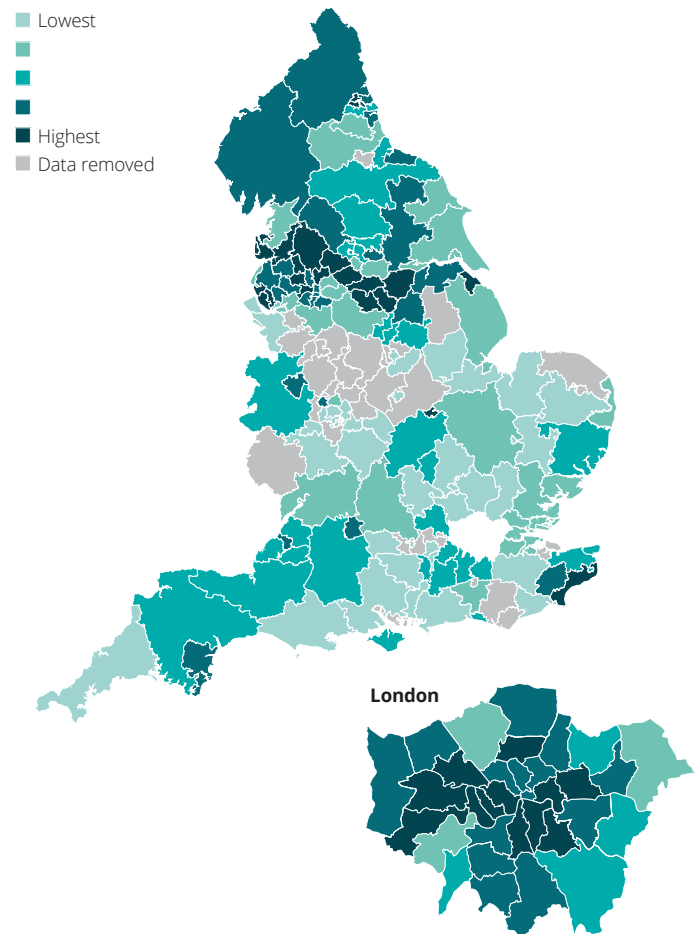
Source: World Bank, 2016

Deprivation and health inequalities have a significant impact on maternal health, children’s neuro-cognitive and physical development, as well as the future disease risk of the child.<sup>36</sup> Some of the key SDOH influencing maternal and infant health include:

- maternal behavioural patterns especially in early pregnancy, including nutrition, smoking and drinking, are associated with low birth weight and carry a variety of risks for the unborn child, including lower performance on development scores and higher risk of disease in later life such as epilepsy, cardiovascular disease and diabetes<sup>37, 38, 39</sup>
- mortality in children under the age of five reduces in line with the years of schooling that women attain, regardless of whether education enrolment increases from high levels (ten to eleven years) or from low levels (two to three years). At a global level education accounts for 51 per cent of the decline in mortality. Women with more education tend to have smaller families, in part because of improved employment chances and better knowledge of contraception. Fewer children increases the chance of infant survival, and better education improves women’s knowledge and decision-making on pre-natal care, hygiene, nutrition and immunisation<sup>40</sup>
- reduced cognitive stimulation in the first three years of life puts brain development of the child at risk and has a negative impact on hearing, vision and emotional control in later life<sup>41</sup>
- children from more educated and affluent families are more likely to be exposed to a wider vocabulary in the first three years of life, which serves as a strong indicator of verbal performance in early school years. In the US, a study of the amount of language spoken to children in 42 families measured the number of words addressed to them by age three. The number varied from 13 million words in welfare recipient families compared to 45 million words in families with college-educated parents (a 30 million word difference)<sup>42, 43</sup>
- emotional attention given in the first days of life is likely to determine the epigenetics of the individual’s response to stress, as well as memory and attention functions. Secure attachment to the primary caregiver in very early life is of fundamental importance for the individual in buffering against anxiety and coping with stressors. The higher prevalence of maternal mental ill-health in lower socioeconomic class constitutes a risk factor for later-life mental health problems in the child.<sup>44, 45</sup>

In addition, SDOH impact maternal and infant health due to the interplay of health behaviour and healthcare utilisation. For example, the 66.6-fold variation in rates of hospital admission for dental caries in children in the UK is best explained by a variation in utilisation of preventive services and health behaviours, correlated with deprivation. Poor oral and dental health in childhood impacts nutrition and growth, decreases quality of life and results in avoidable healthcare costs (see Figure 7).<sup>46</sup>

**Figure 7. Hospital admission for dental caries in children aged one to four years per population across England**



Source: The NHS Atlas of Variation in Healthcare, NHS Right Care, 2015

# Examples of good practice

## Ensuring the best possible start in life



### Case example 1: Improving care for whole families – a family midwife programme (Netherlands)

The Dutch system of maternity care is unique in Europe and is often referred to as an example of how maternity services could be improved in industrialised countries. Midwife-led home care is the cornerstone of Dutch maternity care, with 85 per cent of all pregnant women receiving ante-natal care in primary care and a high percentage of home births under the care of midwives and GPs. The state has historically preserved autonomous midwifery and birth at home through laws and regulations giving preference to midwifery care, state support for midwifery education, and funding research demonstrating the efficacy of midwife-attended home births. Evidence from the WHO shows that midwife-led care reduced the use of analgesia with fewer episiotomies or instrumental births. It also increased the chance of having a spontaneous vaginal birth and successfully initiating breastfeeding, as well as the overall patient experience. In addition, babies were more likely to have a shorter length of hospital stay. The benefits of midwife-led care extend beyond the perinatal period. Through normalising the processes of childbirth and early life, high quality maternity care empowers women and entire families to care for themselves better and become less dependent on external support.<sup>47, 48</sup>



### Case example 2: Improving oral health prevention through one-time motivational interviewing (Austria and Australia)

The causes of dental caries are multivariate and represent a complex interplay of biochemical, microbial, genetic, social and behavioural factors. Parental education and attitudes, as well as the psychosocial and economic environment of the family, represent important mediators of parental oral health behaviour on behalf of their children. Research shows that motivational interviewing strategies targeted at new mothers show the single best outcomes in reducing caries in preschool children. Austrian investigators used a one-time intervention for changing mothers' dietary and oral hygiene behaviours immediately after the birth of a child. A case-cohort analysis at age five demonstrated that children of participating mothers had significantly lower rates of caries. A recent cost effectiveness study conducted in Queensland, Australia found that a home visit intervention during early childhood would save 113 teeth per 100 children, and deliver savings of \$167,032 per 100 children, when compared to no intervention.<sup>52, 53</sup>

Adverse socioeconomic circumstances have a cumulative effect throughout a person's life. For example, low birth weight, which has a strong association with socioeconomic deprivation, can result in health and social disadvantages in both childhood and adult life. Life expectancy changes during the lifespan: by the time a child reaches his or her first birthday, chances of living longer increase, indicating the vulnerability of early childhood. Provision of effective maternity care and support for early childhood development can help give children a better start and improve the chances of a long, healthy and productive life.



### Case example 3: Reducing the number of children in care, by creating opportunities for vulnerable women to develop new life skills to take control of their lives (UK)

Every local authority within the UK has women who are typically young, disadvantaged and living with intersecting social, environmental and health-related issues. These women often have multiple children who are subsequently removed into the care system under child protection proceedings. Their children often suffer from both short- and long-term physical and emotional difficulties and are at risk of becoming vulnerable adults requiring significant interventions from public services. These children are also at risk of repeating the destructive cycle that causes both the women and their children deep trauma, as well as costing the taxpayer hundreds of millions of pounds.

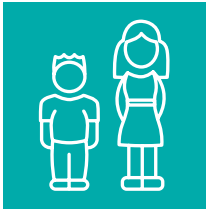
Launched in 2013 in Hackney (London), the Pause programme works with women who have experienced, or are at risk of, repeated pregnancies that result in children needing to be removed from their care. Pause was created by professionals with frontline experience of working in the field of child protection and with vulnerable adults. Pause offers an intense programme of therapeutic, practical and behavioural support through an integrated systemic model, working closely with partner agencies (e.g. sexual health, criminal justice, and drug and alcohol services). Each woman has a bespoke programme designed around her individual needs and goals. During this voluntary programme women are required to use a reliable form of long acting reversible contraception enabling them to focus on themselves and for their needs to be prioritised, often for the first time in their lives. Detailed findings from initial pilot areas indicate:

- significant improvement of health and wellbeing of the participating women and their families
- without the intervention the 137 women supported through Pause would have been likely to have had 27 more children taken into care per year at an annual cost of over £1.5 million to the tax payer
- estimated cost avoided per child of around £39,333
- every £1 invested in Pause is yielding a return of a minimum of £9 over five years.

If every woman in England who had had two or more children taken into care could work with Pause, more than £2.5 billion could be saved over five years. In 2016 the project received a further £6.8 million funding from the Department of Education's Innovation Fund to increase its scale and spread nationally. Pause is working towards becoming a wholly preventative approach in the future, by intervening at earlier stages in this transgenerational cycle. Pause is expanding to reach more than 43 sites over the next five years across the UK.<sup>49, 50, 51</sup>

# Childhood and adolescence

## Establishing healthy behaviours and building resilience



Income poverty affects one child in seven in OECD (Organisation for Economic Co-operation and Development) countries, while ten per cent of children live in jobless households. Since the 2008 financial crisis, child poverty rates have risen in two-thirds of OECD countries and in most of these

countries, the poverty rate for children is higher than for the population in general.<sup>54</sup>

Children who are actively engaged in society, physically active and eat well have significantly higher chances of growing into healthy, active, productive and socially included adults. Children living in socioeconomically disadvantaged families face greater direct physical challenges to their health status and health-promoting behaviour. They also often experience emotional and psychological stresses, such as family conflict and instability arising from chronically inadequate resources. Effects of childhood deprivation and related cumulative childhood stress carry through the entire lifespan and have a negative impact on educational attainment and behavioural patterns in later childhood, adolescence and young adulthood.<sup>55, 56</sup>

Research indicates that children growing up in vulnerable families in the first six years of life and those growing up in households with neither parent nor carer in work, show particularly bad outcomes in socio-emotional behaviour and cognitive development.<sup>57, 58, 59</sup>

However, data across Europe shows that children in poverty are not just in non-working families and indeed are now more likely to be in low income working families than non-working families.<sup>60</sup> These families are considered the ‘working poor’ with parents in temporary, low-paid and ‘zero hours’ jobs or moving in and out of employment. Children living in ‘hidden poverty’ are at a particular risk when policies are means-tested.<sup>61</sup>

Children rely on adults to provide for their individual needs and assessing childhood deprivation requires taking distribution of resources among household members into account.<sup>62</sup> Data collected across Europe shows that children of vulnerable families living in stressful environments get less access or encouragement to be physically active or eat healthy food, and as a result are more likely to be obese. In England 40 per cent of children in most deprived areas are overweight, but only 27 per cent in most affluent. They are also more likely later in life to adopt – and less likely to discontinue – risky health behaviours like smoking, alcohol and drug abuse.<sup>63</sup> Understanding and measuring childhood deprivation at national and cross-country levels helps to target services that aim to overcome these disadvantages. The OECD Child Wellbeing Module is a new dataset for age-specific child wellbeing information. Figure 8 shows the variable performance of Western European countries on tackling key determinants of health and deprivation.<sup>64</sup>

**Figure 8. Cohort performance on childhood deprivation (rank out of 23 OECD nations)**

	Birth weight <sup>i</sup>	Vaccination rate <sup>ii</sup>	Obesity	Exercise	Smoking	Educational deprivation <sup>iii</sup>	Employment, education or training <sup>iv</sup>	Poverty
<b>Belgium</b>	15	1	9	12	10	10	14	16
<b>Denmark</b>	5	19	1	5	5	2	8	1
<b>Finland</b>	2	8	19	3	13	13	11	2
<b>Germany</b>	12	13	12	15	15	8	4	8
<b>Iceland</b>	1	22	21	8	1	1	3	3
<b>Netherlands</b>	7	13	3	7	11	6	5	12
<b>Norway</b>	4	21	8	17	2	3	2	4
<b>Sweden</b>	3	8	15	16	4	17	6	6
<b>Switzerland</b>	11	13	4	23	9	7	7	5
<b>UK</b>	15	18	12	13	7	19	13	9

■ Top third performers ■ Middle third performers ■ Bottom third performers

Source: Deloitte analysis of performance out of OECD countries; OECD, 2017

Note: <sup>i</sup>Number of live births weighing less than 2500g as a percentage of total live births; <sup>ii</sup>Vaccination rate for diphtheria, tetanus and pertussis;

<sup>iii</sup>Resources for school available to 15-year old children in their home, such as a desk, a quiet place to work, internet and computer access;

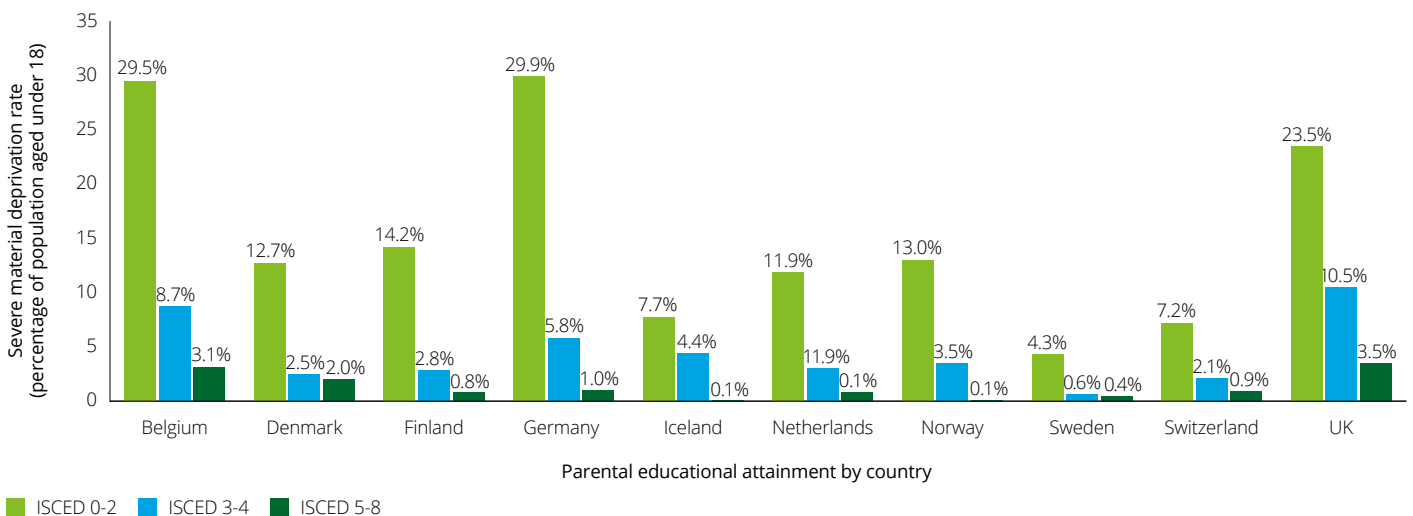
<sup>iv</sup>Proportion of 15-29 year olds not in employment, education or training

Educational policy plays a decisive role in increasing the chances of overcoming deprivation in childhood. Educational attainment of members of vulnerable families is important for two key reasons: first, parental educational status is correlated to childhood deprivation (see Figure 9); second, on average across Europe, life expectancy varies by 5.6 years between people of the lowest (76 years) and the highest educational attainment (81.6 years), as defined by the International Standard Classification of Education (ISCED).<sup>65</sup> Early learning in high quality day-care centres can provide a countermeasure to family deprivation and strengthens socio-emotional coping, enhances cognitive development and has a positive impact on school grades, with strongest effects shown in children from the most vulnerable families.<sup>66</sup>

Family interventions directed at supporting vulnerable families to improve parenting are equally relevant. For example, the population-based behavioural family intervention Triple P-Positive Parenting Programme, developed and first implemented in Australia, has been successfully replicated in a number of different countries, including Iran, Japan and Switzerland. The programme has been successful in reducing behavioural and emotional problems in children and hospitalisation from child abuse, while improving parenting skills and wellbeing.<sup>67,68</sup>

One of the largest-ever investigations of childhood abuse and neglect and its impact on later-life health and wellbeing is the US Centers for Diseases Control and Prevention (CDC) 'CDC-Kaiser Permanente Adverse Childhood Experiences (ACE) Study'. The study of over 17,000 people enrolled in the Kaiser Permanente health insurance programme was originally conducted in two phases in 1995 and 1997. Participants received physical exams and completed confidential surveys regarding their childhood experiences and current health status. Results indicated that failing to address the social determinants of childhood development meant missing a crucial window of opportunity for individual development, due to the accumulation of disadvantage and latency effects – with negative consequences for individual wellbeing, social participation and need for support later in life. The CDC's ongoing surveillance of ACEs, assessing the medical status of the study participants via periodic updates of morbidity and mortality data, has continued to find a strong relationship between the breadth of exposure to abuse or household dysfunction during childhood and leading causes of adult morbidity and mortality. These results have been confirmed in numerous studies in a large variety of countries.<sup>69,70</sup>

**Figure 9. Deprivation rate of children under 16 is related to their parents' educational attainment**



Source: Eurostat, 2015

Note: ISCED (International Standard Classification of Education), ISCED 0-2: Less than primary, primary and lower secondary education. ISCED 3-4: Upper secondary and post-secondary non-tertiary education, ISCED 5-8: Tertiary education.

Severely materially deprived persons have living conditions severely constrained by a lack of resources regarding household income, durables, housing and environment; households experience at least 4 out of 9 following deprivations items: cannot afford i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone.

# Examples of good practice

## Stopping childhood deprivation becoming destiny



### Case example 4: Preventing childhood obesity through cross-sector partnerships (Belgium and France)

Ensemble Prévenons l'Obésité Des Enfants (EPODE, Together Let's Prevent Childhood Obesity) is a community-based intervention programme that enables communities to implement effective and sustainable strategies to prevent childhood obesity while minimising social and cultural stigma. Originally established in 1992 in France, EPODE has become widespread and has been implemented in over 500 communities in 29 countries. EPODE is a coordinated, capacity-building approach aimed at reducing childhood obesity through a societal process in which local environments, childhood settings and family norms are encouraged to facilitate the adoption of healthy lifestyles in children. The primary EPODE target groups are children aged up to 12 and their families. The programmes are aimed at long-term change to the obesogenic environment that leads to unhealthy behaviours. The evidence-based EPODE methodology takes a positive approach to achieving healthy lifestyle habits and does not stigmatise any cultural food habit or behaviour. It includes ensuring quick access to enjoyable, healthy food and overcoming the present bias and social marketing techniques that enhance risk behaviours. In addition, all messages and actions are tailored to local populations based on needs and demographics to ensure the programme is effective and inclusive. Evidence from Belgium showed a 22 per cent reduction in the prevalence of overweight and obesity from 2007-10 in the two towns of Marche and Mouscron, compared with non-intervention control towns. The success of the intervention in France and Belgium led to the creation of the EPHE (EPODE for the Promotion of Health Equity) project in 2012 aiming to reduce socioeconomic inequities linked to health-related behaviours of families in seven European countries.<sup>71</sup>



### Case example 5: Working together to improve educational attainment and employability (Norway)

In 2015, the Norwegian Directorate for Education and Training, the Directorate for Labour and Welfare, the Norwegian Directorate for Children, Youth and Family Affairs, the Directorate of Integration and Diversity and the Norwegian Directorate of Health, were given a joint assignment from their respective ministries: to coordinate, further develop and implement policies ensuring that children and youths aged up to 24 years old complete sixth form education and increase their chances of long-term employment. The government agencies involved in the programme have shown considerable commitment to addressing problems and coordinating processes, routines and working methods. Well-coordinated and consistent management, as well as executives who act as good role models have been vital in sustaining collaboration. The programme-period is 2015-2020 and accompanying evaluation is ongoing.<sup>72, 73</sup>





### Case example 6: Improving mental resilience through school-based interventions (Ireland, Netherlands, Norway, UK)

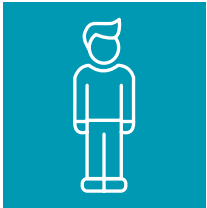
The mental health of children and adolescents is a key challenge, especially in the context of vulnerable families. Educational settings provide a key opportunity for developing strategies for mental resilience and wellbeing.

Research shows a favourable cost-benefit ratio when including mental health in educational strategies, as it releases societal resource in terms of mental capital, which includes cognitive, emotional and social skills. For example, the 'Zippy's Friends' programme, which is aimed at five to seven year olds of all abilities, teaches young children how to develop skills to better manage problems that may occur in adolescence and adulthood. It teaches them how to cope with everyday difficulties, to identify and talk about their feelings and to explore ways of dealing with them. The programme has been implemented in schools in over 30 countries and reached over one million children. A recent randomised control evaluation of the programmes involving 1,177 children in the Netherlands showed significant improvement in children's emotional recognition and adaptive coping skills. Parents also reported an improvement in children's social and emotional skills, particularly enhanced motivation and reduced externalising behaviour problems, such as hyperactivity and aggressive behaviours. In addition, an earlier 2012 study with nearly 1,500 children in Norway found improvements in children's academic skills. The programme significantly reduced bullying. There was no clear relationship between the effect of 'Zippy's Friends' and ethnicity, gender or the educational level of parents. A new randomised control trial is currently underway in the UK to evaluate whether taking part in 'Zippy's Friends' improves children's emotional wellbeing and/or helps them to do better academically. The study, conducted by Queen's University Belfast, involves 80 schools and over 3,800 pupils. Final study results will be available in January 2018.<sup>74, 75, 76</sup>

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# Adulthood and working age

## Creating the conditions for a productive life



Adulthood and working life accounts for a large part of an average person's economic and productive life and is the stage during which the economic and productivity opportunities manifest themselves including opportunities for social mobility. The childhood and educational factors

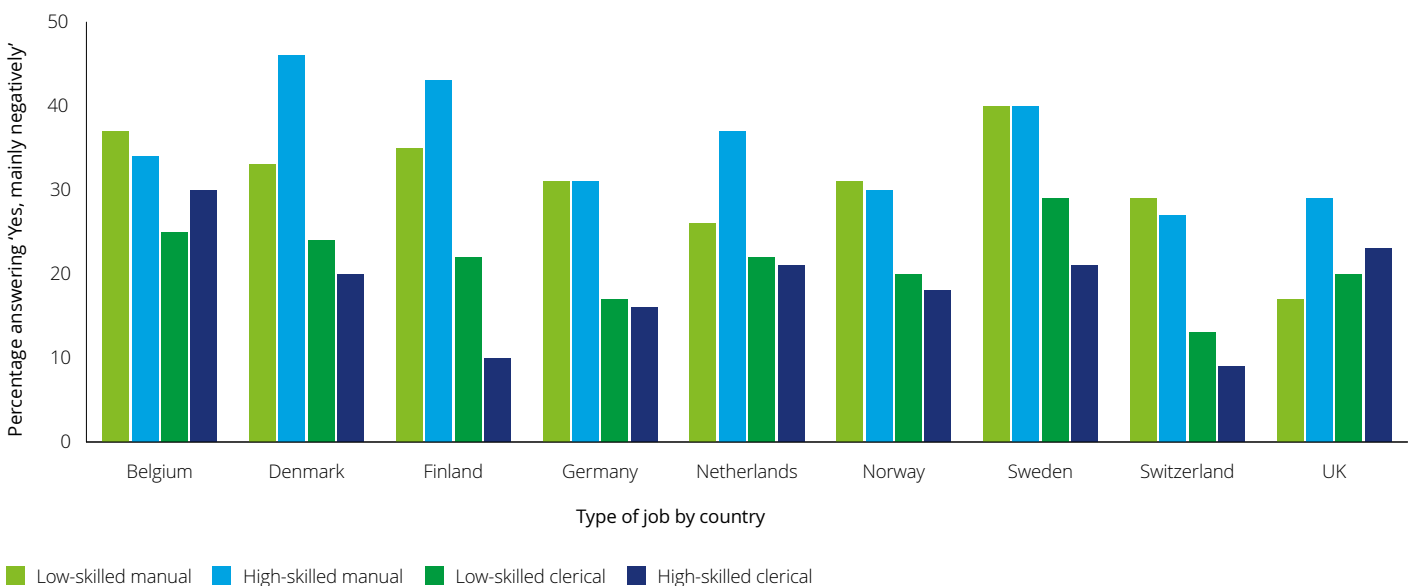
previously discussed, the type of work people do (if employed), the 'built' environment in which people live and opportunities of social inclusion interact hazardously with behavioural patterns, resulting in increased morbidity and mortality. Moreover, it is during adulthood that the risk of intergenerational transmission of inequalities is being established, depending on the chances of overcoming the social determinants of health in the context of family building and parenting.

Unemployment and poor employment conditions regarding wages, adverse working conditions, flexibility to combine work and family life and job security all threaten individual physical and mental health.<sup>77</sup> Analysis of a large data set from 26 EU countries over the period 1970-2007 showed that for every one per cent increase in unemployment, there was an associated 0.79 per cent rise in suicides among people younger than 65 years, with an almost two-fold increase in suicide risk among the long-term unemployed.<sup>78</sup>

Intergenerational inequalities can be stark and the steep increase in long-term unemployment following the financial crisis in 2008 has disproportionately affected young working age people. Indeed, the downward trend in suicides seen prior to 2007 began to reverse as the mental health of the unemployed deteriorated, particularly in young men. Data from England shows that male unemployment was associated with about two-fifths of the rise in suicide rates, with a correlation between areas of greatest increases in unemployment and steeper increases in suicides in those areas.<sup>79, 80, 81</sup> However, strong social welfare systems can offer protection against unemployment-related mental health risks. For example, compared to Spain higher labour market protection in Sweden helped reduce suicide risks.<sup>82</sup>

Across Europe, low-paid and low quality jobs go hand-in-hand with poor working conditions and higher exposure to health risks.<sup>83</sup> Figure 10 highlights the correlations of workers' skill level and perceived health impacts of working conditions.<sup>84</sup> Employment also has an impact on family vulnerability, with research finding that the ability to combine family life with paid employment is a determinant of family wellbeing, health and the educational chances of all family members. Single parents and families with many children face higher risks, and the reconciliation of low-paid work and child care is of particular difficulty.<sup>85</sup>

**Figure 10. People in manual jobs are more likely to perceive their working conditions as harmful to their health**



Source: Sixth European Working Conditions Survey 2015

Note: Survey question: 'Does your work affect your health?' Answer selected: 'Yes, mainly negatively'

The 'built' environment that people live in relates to the density and mix of land use, quality of housing, street layout and connectivity, including public transport, open community space, accessibility to public services, as well as air quality and noise. The most deprived 10 per cent of English communities have five times less the amount of green space compared with the most affluent 20 per cent.<sup>86</sup>

Research shows that this 'built' environment influences behaviours both relating to physical activity and violence. While perceived friendly and inclusive environments stimulate 'thrival', healthy and collaborative behaviours, harsh urban environments promote a 'survival pattern' of high-risk and aggressive behaviours.<sup>87,88</sup>

Resulting health and social inequalities include:

- higher rates of obesity resulting from low levels of physical activity and reduced access to or understanding of healthy nutrition and diet (Figure 11)<sup>89</sup>

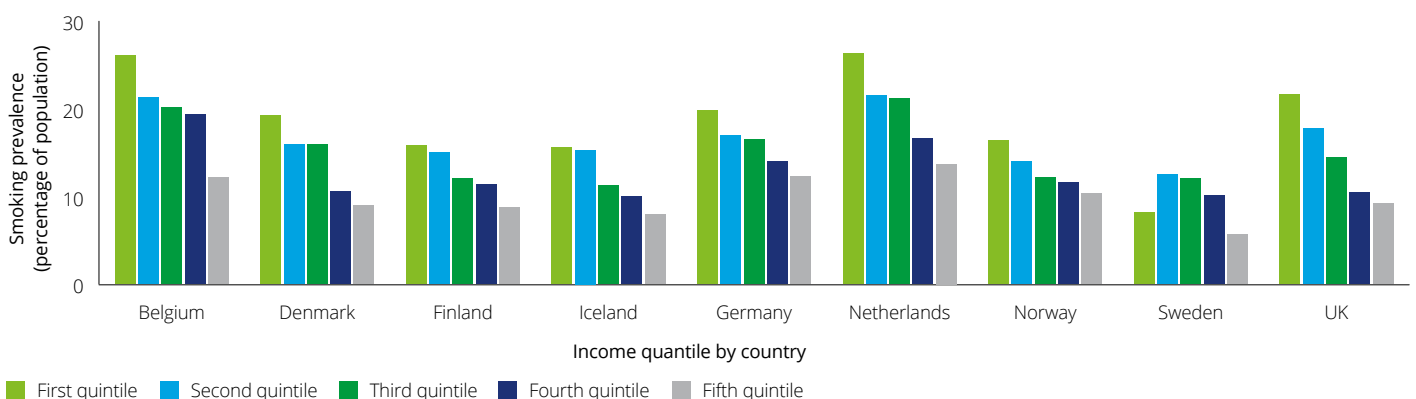
- higher prevalence of smoking is associated with social position, income and educational attainment. Public health interventions targeting a reduction of consumption fail to reach the lowest educated share of population (Figure 12).<sup>90</sup> Evidence from Denmark shows that smoking-related and alcohol-related deaths are the main reason for the social inequality in mortality, and constitute approximately 64 per cent of that inequality among men and 71 per cent among women in 2005–2009<sup>91</sup>

- higher crime rates, including exposure to violence, in more deprived areas. The effect of this is manifold both for the individual at risk of showing criminal behaviour and for populations living in areas with higher crime rates who are impacted in their mental and physical health as a result from actual or feared crime.<sup>92</sup>

**Figure 11. Lower income is related to higher obesity prevalence across Western European countries**



**Figure 12. Lower income is related to higher smoking prevalence across Western European countries**



Source: Eurostat, 2014

Note: The first quintile group represents 20 per cent of the population with the lowest income (an income smaller or equal to the first cut-off value), and the fifth quintile group represents the 20 per cent of population with the highest income (an income greater than the fourth cut-off value)

# Examples of good practice

## Promoting productive participation in society



### Case example 7: Promoting health is promoting employment – JobFit (Germany)

The German Federal Employment Agency partners with statutory health insurance funds to embed health promotion into the work of local job centres to improve the health status of benefit recipients and employability. From June 2014 to June 2015, specific training sessions on healthy behaviours and stress reduction were included

in the training curriculum for job seekers in six pilot regions across the country. Jobless people were approached and managed individually to assess individual health literacy, making use of motivational interviewing strategies and building up a targeted health promotion plan. Statutory health insurance programmes provided financial support to various training courses initiatives, especially prevention courses, stress management and group-focused training sessions. Public health training sessions were also specifically designed for the 134 members of staff at job centres and those providing the training courses. The programme fostered a network of collaboration between occupation and training institutions for the unemployed, statutory health insurance institutions as well as local charities and businesses. Key results for the 1,366 participants in the pilot programme included a reduction in sickness days, improvement in health behaviours regarding physical activity and nutrition and a reduction in psychosocial stress, while employability was also improved. Self-assessed ill-health reduced from 46 to 32 per cent. The pilot programme has been extended and is being rolled-out in 50 job centres across Germany.<sup>93, 94</sup>



### Case example 8: Tackling violence-related ill-health through cross-sector information sharing (UK, Australia, US)

The Cardiff (Wales) Violence Prevention Programme (CVPP) is a multiagency partnership designed to prevent all forms of violence and reduce violence-related emergency room admissions, particularly late at night and on weekends, when services are overextended and alcohol-related incidents are common. CVPP is a data-sharing strategy, which was developed under the leadership of a professor of surgery and became fully operational in 2003.

Data collected in emergency departments plays a critical role in informing targeted policing efforts and other strategies as emergency departments have the unique ability to share anonymised electronic data about precise location, weapon use, assailants and day and time of the violence that is not always known to the police. Programme evaluation found:

- a 21 per cent decrease in the average rate of total assaults
- a 32 per cent reduction of assaults leading to wounds
- a reduction in monthly hospital admissions in Cardiff from seven to five per 100,000 population. Hospital admission rates in control group cities increased from five to eight per 100,000 population.

The benefit-cost ration of the programme was 14.80 for the health service and 19.1 for the criminal justice system. The project has been adopted in cities throughout the world, most recently in London, Melbourne, Sydney and Canberra.<sup>95, 96</sup>



### **Case example 9: Stepping up to the challenge – collaboration across public and private sector to promote healthy behaviours (Denmark, Canada, China, Italy, Mexico, South Africa, US)**

Private sector organisations increasingly take an active role in addressing healthy behaviours and helping to improve population health in vulnerable communities. These initiatives involve public/private partnerships working together to tackle health inequalities in local communities and promote healthy behaviours in the workplace. For example 'Cities Changing Diabetes' is a partnership programme currently running in Copenhagen, Houston, Johannesburg, Mexico City, Rome, Shanghai, Tianjin and Vancouver. The main programme partners are Novo Nordisk, University College London and Steno Diabetes Center (Denmark), collaborating with a wide range of locally based health partners to share solutions and actions that tackle diabetes in major global cities. In Copenhagen, local partners include the city administration, the University of Copenhagen and the Danish Diabetes Association. Research insights from the global partnership informed the City's updated diabetes strategy and included integrating social norms and choice architecture into urban planning, targeted at vulnerable, hard to reach communities.<sup>97</sup>

Adulthood and working life accounts for a large part of an average person's economic and productive life and is the stage during which the economic and productivity opportunities manifest themselves, including opportunities for social mobility.

# Elderhood and increasing frailty

## Achieving equality in length and quality of life



Until the mid-2000s, it was assumed that the gulf between rich and poor or educated and less educated was less of a concern in older populations. Age was thought to have a 'levelling off' effect on socioeconomic inequalities. However, longitudinal studies have shown that socioeconomic disadvantage

is associated with an increased risk of disability, chronic disease and co-morbidity, depression and decline in cognitive function across all age groups. Indeed, older people belonging to lower socioeconomic groups have a 30 to 65 per cent higher risk of almost all chronic diseases than those in more privileged social groups.<sup>98</sup>

Moreover, health inequalities persist and indeed exacerbate in old age. Indeed, the prevalence of disability is 5.8 per cent in people under 18, 44 per cent among 65 to 74 year olds, and 84 per cent of people 85 years and over. Whether adults are disabled before reaching old age or acquire a disability as they age, they are more likely to live in poverty and social isolation.<sup>99</sup>

The English longitudinal study of ageing, conducted from 2002 to 2010, showed that men and women of higher economic status, measured by wealth or education, had the same level of reported good health and functioning as people of lower economic status, who were 15 years younger.<sup>100</sup> Ageing impacts negatively on peoples' ability to be physically active and participate in social activities, resulting in new or worsening of pre-existing long-term conditions such as diabetes, cardiovascular disease and chronic obstructive pulmonary disorder, as well as depression.<sup>101</sup>

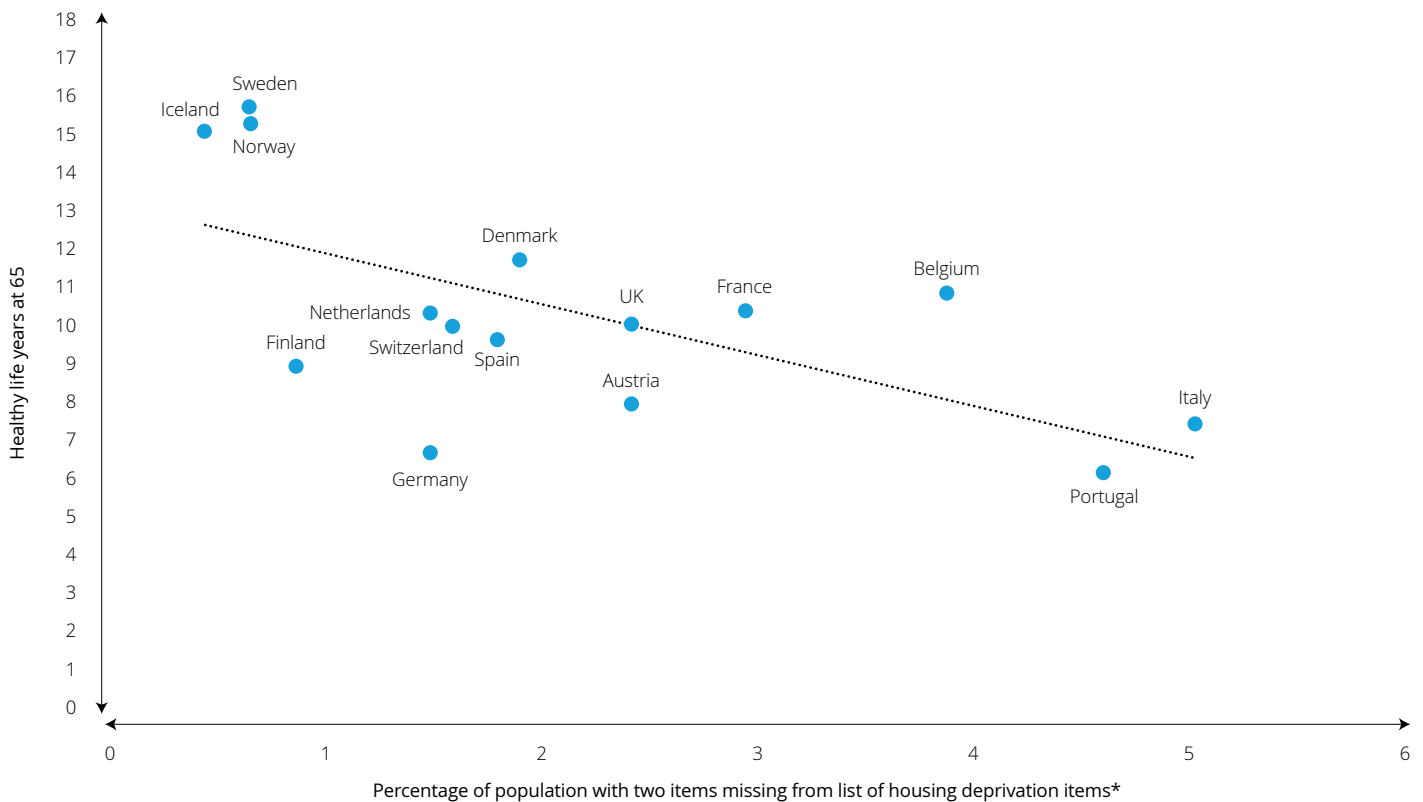
Across Europe depression affects 10 to 15 per cent of people over 65, with a disproportionate number in lower social economic groups. Indeed, only cardiovascular disease has a greater toll on morbidity and mortality than depression. Yet depression remains under-recognised and highly stigmatised across Europe.<sup>102</sup> Older persons with depression are two to three times more likely to have two or more chronic illnesses and two to six times more likely to have at least one limitation in their activities of daily living. Depression is the major cause of suicide in Europeans. Rates of suicide and self-harm are around 26 per cent higher in Europeans over 65 than amongst the 25-64 age groups. In 90 per cent of EU countries, the suicide rate is highest in those over 75.<sup>103</sup>

Certain 'forgotten' groups of older people are at greater risk of ill-health. These include older women, members of ethnic and cultural minorities, socially isolated and disabled older people. While risk of mortality is higher for most chronic conditions in older men, women present a much greater risk of disability as they age, mostly due to the presence of multiple conditions. Because they live longer, women are also at greater risk of social isolation as they age, with social isolation leading to loss of independence. Many older women are carers and may devote their energies to caring for relatives at the expense of their own health. Women typically do not allow themselves time to convalesce in the same way as men and often take a more stoic and passive patient role, including delaying seeking medical treatment.<sup>104</sup>

On average in Europe, 31.4 per cent of the elderly live alone.<sup>105</sup> As vulnerable adults get older and frailer, they increasingly need support in their daily lives to continue living in their own homes, including adaptation to the building structures and provision of home-based care.<sup>106</sup> However in the UK, for example, support for people to remain living independently in their own homes has been severely affected by cuts to care services with spending on home care services reducing by almost a fifth between 2010-11 and 2013-14. This has undermined the adoption of more preventative approaches that delay or prevent the onset of more intensive care needs.<sup>107</sup>

The suitability of accommodation for older people is critical to their ability to remain as healthy and independent as possible. However, one in five homes in the UK do not meet the decent housing standards with poor housing costing the NHS £1.4 billion to £2 billion per year in England alone.<sup>108</sup> For example, living in a cold home can make people sick with older people particularly vulnerable, due to increased risk of heart and lung disease as well as worsening conditions like arthritis and rheumatism. Funding for home improvements and refurbishment has declined, which particularly affects older people on low incomes who own their own homes.<sup>109</sup> Across Europe, higher housing deprivation is correlated with fewer remaining healthy life years at the age of 65 (Figure 13).<sup>110, 111</sup>

**Figure 13. Higher housing deprivation rates are correlated with fewer remaining healthy life years at 65**



Source: World Health Organization, Eurostat, 2016

\*Note: The indicator is defined as the percentage of the population deprived of each available housing deprivation items. The items considered are: leaking roof, damp walls/floors/foundation, or rot in window frames or floor; lack of bath or shower in the dwelling; lack of indoor flushing toilet for sole use of the household; problems with the dwelling: too dark, not enough light

Moreover, inequality in care for older people is influenced by patterns of utilisation and access to prevention and regular treatment. Utilisation patterns reinforce the inverse care law, which states that those in greatest need of care often have the least access to care and make up hard to reach patient groups. In Europe, urban planning of healthcare services, availability of transport services and variation in health literacy act as barriers to accessing care. The lower utilisation of prevention and regular healthcare contributes to the higher use of emergency care and higher risk of hospitalisation seen among those in receipt of social assistance.<sup>112</sup>

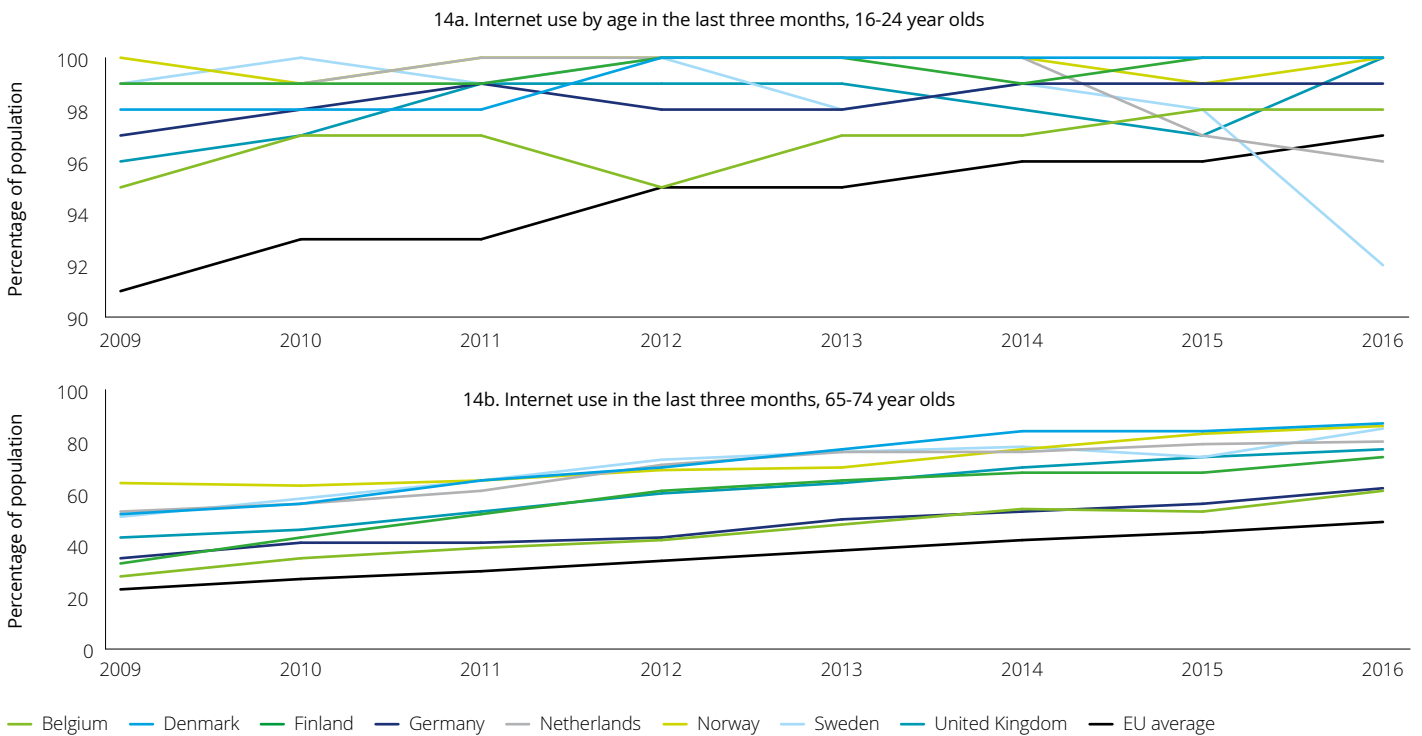
Older people as a group provide an invaluable economic and social contribution to society in areas such as volunteering, childcare and care of other adults. However, older people in vulnerable families who have suffered a life of disadvantage and who are arguably more likely to be needed to provide unpaid support to their family, are less likely to be in a position physically to provide that support, disadvantaging vulnerable families further. Moreover, in vulnerable families the needs of the ageing family members are often inadequately addressed, with elderly family members often left to be cared for outside of the family system, increasing their loneliness and worsening their mental health. The result is accumulating demand and costs to health and social care services across all generations.

To overcome the challenges of increasing demand for services, social isolation and poor health literacy most European countries aim to implement technology-enabled healthcare solutions to improve care and reduce costs. Technology can alleviate the disadvantages, isolation and marginalisation experienced by many older people. When asked about their preferred way of accessing information, older people often mention television and radio. However, increasingly, mobile phones and the internet are helping older people keep in touch with their families and friends. Technology also ensures more safety at home, facilitates healthcare, brings new stimuli into older persons' lives and creates greater access to information.<sup>113</sup>

However, access to broadband internet, mobile devices and computers at household level are becoming a relevant social determinant of health, particularly for older people.

In Western European countries, an average of 11 per cent of individuals do not have access to basic broadband internet at home, with lack of skills and high costs being the main barrier to installation.<sup>114, 115, 116</sup> Internet use varies by age (see Figures 14a and 14b).<sup>117</sup> The share of elderly who use the internet at least once a week, on average in the EU-28 is 41 per cent. Variation ranges from, 83 per cent of weekly users in Iceland to 51 per cent of weekly users in Belgium. Across Europe, over 69 per cent of people who lack basic digital skills are aged over 55 years. According to the OECD, the breadth of internet activities carried out by users of high educational background is on average 58 per cent higher than those with lower education levels. Data from the UK point to a high risk of digital exclusion for older people of low socioeconomic status; older people with the lowest income were over five times less likely to be using the internet, than those with the highest monthly incomes. Poorer self-perceived health is also associated with non-use of the internet.<sup>118, 119</sup>

**Figure 14. Cross-country and age differences of internet use**



Source: Eurostat, 2017

Note: For readability vertical axis values differ between Figures 14a and 14b



# Examples of good practice

## Ensuring social inclusion, care and support



### Case example 10: Providing decent and safe housing for older people to improve outcomes while reducing costs (UK)

Across the UK, housing associations and local authorities collaborate to improve housing standards for older people who are dependent on public housing. For example:

The local housing association in Staffordshire encouraged investments in fitting preventive housing adaptations by arguing that the average cost of a fall at home leading to a hip fracture costs the state £28,665, more than 100 times the cost of providing simple preventive measures such as grab rails and hand rails.

The ExtraCare Charitable Trust supports older people in 14 retirement villages and 17 housing schemes. Its ExtraCare Wellbeing service provides an informal drop-in service for preventive health care and day-to-day support for long term condition management. An independent impact evaluation of 162 new residents versus 39 control participants showed that over the course of 12 months 19 per cent of the intervention group had improved from a 'pre-frail' to a 'resilient' state with more general reductions in levels of depression and cognitive function. Planned GP visits fell by 46 per cent and planned hospital admissions fell by 31 per cent, leading to an overall reduction of 38 per cent of NHS costs for the intervention group, a saving of £1,115 per person per year.

The Hyde Healthy Living Project delivers services to address the needs of patients over 75 who live in an area of multiple disadvantage. The Project is a joint investment between Tameside Council, New Charter Group and Tameside and Glossop Clinical Commissioning Group - working with primary care teams at eight GP practices. Community based triage supports early interventions – both social and medical. The goal of the project is to ensure elderly people receive appropriate community-based support. A cost-benefit analysis illustrated that the project delivered social impact and health outcomes worth £2.81 for every £1 invested, 37 per cent of which in terms of averted healthcare costs.<sup>120, 121, 122</sup>



### Case example 11: Remote monitoring and health coaching to improve health of older adults (Finland)

The Finnish project 'Remote monitoring and health coaching in South Karelia' recognised that the most important success factor in the reach of vulnerable older adults with a chronic disease is the combination of e-health and mobile techniques with personal health coaches. Mobile services were provided by mobile teams at home as well as in wellbeing centres in collaboration across nine regional municipalities. The project supported older adults in maintaining socially engaged lives and accessing the internet to enable use of telehealth community-based care. The inclusion in cultural activities addressed isolation, while improving health outcomes at the same time.<sup>123</sup>



## Case example 12: Co-creating healthy urban living - the Utrecht health approach (Netherlands)

Utrecht is the fastest growing city in the Netherlands. In 2014, the city analysed the health of its population by collecting data in a public health monitor. Despite generally good health among its residents, health inequalities were detected. The city has developed a comprehensive public health strategy, based on the principles of co-creation and collaboration across sectors, to promote healthier lifestyles and housing. The key elements of the strategy 'healthy city', 'healthy neighbourhood' and 'healthy start' address good health as a goal in itself, as well as a means to deliver other individual goals, such as social participation, professional success and development. The city has worked to create a healthy community at district as well as neighbourhood level, and brings together volunteering residents, community organisations (including schools, local businesses, health and social care providers and insurance companies) and the city authority. It addresses housing standards, nutrition and access to care. The initiative is supported by the national 'Healthy in the City' incentive programme that provides targeted budgets for the reduction of health inequalities particularly in later life, as well as a knowledge sharing platform. For example, Hoograven Together provides a low threshold service for senior citizens that involves elderly residents as providers of social activities and reduces loneliness in that age group. The city is investing in further developing the public health monitor into an up-to-date, transparent knowledge tool to monitor outcomes of the initiatives, including return on investment.<sup>124, 125</sup>

Longitudinal studies have shown that socioeconomic disadvantage is associated with an increased risk of disability, chronic disease and co-morbidity, depression and decline in cognitive function across all age groups. Indeed, older people belonging to lower socioeconomic groups have a 30 to 65 per cent higher risk of almost all chronic diseases than those in more privileged social groups.

# Integrated solutions to improve outcomes at all life stages

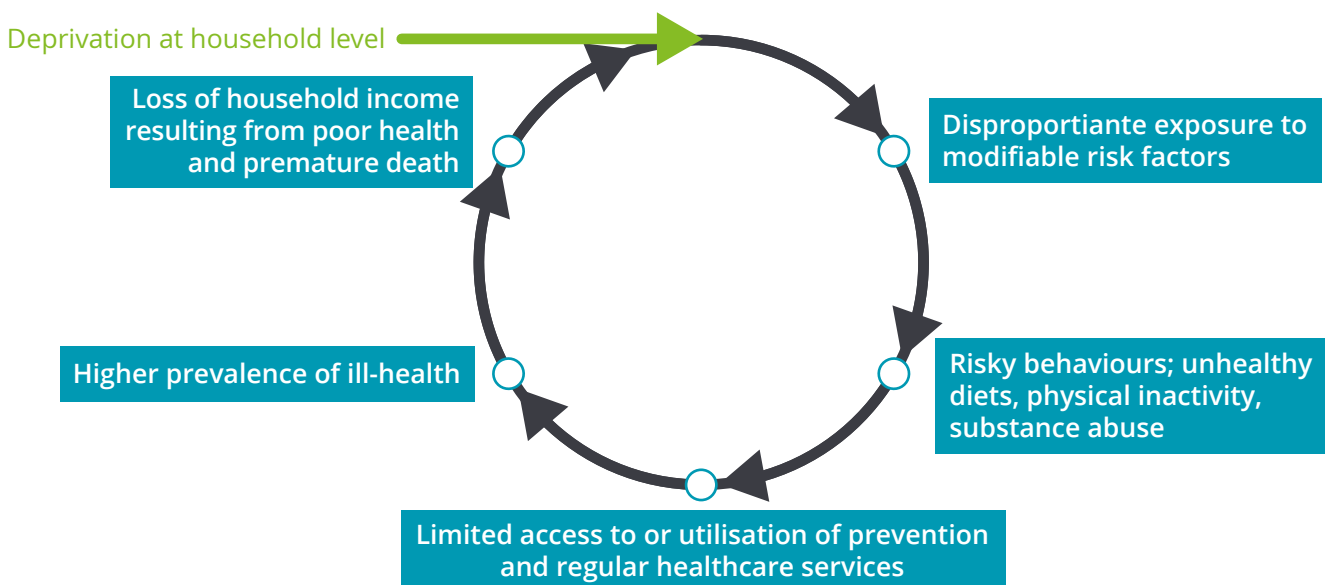
Taking a whole system, life cycle approach recognises that the influences that operate at each stage of life affect health and wellbeing throughout a person's life and require targeted integration.

Figure 15 shows how family vulnerability and in particular household poverty and ill-health perpetuate each other. Policy initiatives directed at vulnerable families across Europe increasingly recognise that giving each child the best possible start in life is likely to deliver the best societal and overall health benefits. However, these initiatives often inadequately link to interventions directed at other life stages and fail to effectively avoid perpetuation of vulnerability, enable cross-generational support or reduce avoidable costs.

There is a clear consensus among policymakers and health system leaders across Europe that better integration of healthcare and social services systems has the potential to simultaneously address the multiple underlying issues of health inequality and reduce overall costs. However, all the countries examined in this report struggle to implement integrated solutions at a sufficient pace and scale.

This section highlights a set of innovative integrated solutions trialled across Europe, which bring together a wide range of highly engaged stakeholders from local and central government, including education, housing, transport, the environment, police and fire and rescue services. It also draws on good practice examples from other parts of the world. The case examples illustrate how lessons learned in tackling vulnerable families through collective action could be applied at scale to help reduce health inequalities, improving the chances of living a healthy and productive life for entire populations.

**Figure 15. The vicious circle of social deprivation and ill-health**



Source: Deloitte Centre for Health Solutions, 2017

# Examples of good practice



## Case example 13: An integrated approach to support at-risk families (Denmark)

Danish population data shows that children and young people who are known to the social services system from childhood are overrepresented in the benefit system later in life. Deloitte Denmark supported the Ministry of Social Affairs and Interior and the Danish Labour Market Authority in developing and testing a new integrated approach and monitoring tools to address the needs of vulnerable families. A systematic screening of the resident's needs, based on a standardised, nationwide assessment method supports the local case manager with structured knowledge of a resident's challenges, resources and desires. The frequency of reporting enables continuous monitoring for signs of progress in the families in terms of wellbeing, employment, school attendance, leisure activities and other indicators. The overall costs of the interventions and benefits are also monitored to document the social return on investment. Data is compared to a baseline measurement conducted at the start of the initiatives as well as to a control group. To achieve the greatest impact in the interventions, each of the project municipalities applies a cooperation model ensuring integrated, standardised interventions across all participating organisations. The project was initiated in 2014 and currently ten project municipalities monitor and report data on around 400 families every three months. Outcomes include improved wellbeing and functional level for parents and children. Results to date indicate a:

- 15 per cent increase in the number of adults in regular employment and in educational programmes
- 10 per cent decrease in children's absence from school
- 9 per cent decrease in adults suffering from stress and depression
- 16 per cent increase of children of reporting adequate wellbeing.

Satisfaction among participating families and social services staff is high. An economic evaluation of the intervention indicates annual savings of \$88,100 when a family with moderate problems is pulled out of vulnerability and \$117,500 when a family with extensive problems improves to having light remaining problems. Considering the costs of the programme this means that if merely 1 family out of a cohort of 25 successfully overcomes disadvantages, the project will reach break-even.<sup>126, 127, 128</sup>

Policy initiatives directed at vulnerable families across Europe increasingly recognise, that giving each child the best possible start in life is likely to deliver the best societal and overall health benefits.



### Case example 14: The wider public health workforce – making every contact count (UK)

Increasingly, Fire and Rescue Services in the UK partner with colleagues across the public sector to address health inequalities in the community, based on the understanding that both fire hazards and health follow a social gradient. Preventative strategies that address fire risks include deprivation, housing conditions, smoking habits and social isolation and simultaneously deliver benefits to population health. For example, the Fire and Rescue Services in Merseyside are tackling social and health inequalities in the community by educating people about the benefits of fitness, healthy eating and a healthy lifestyle. The Service developed a wide range of preventative initiatives, such as the Fire Fit programme launched in 2008. Firefighters are used as role models to help encourage people to take part in sporting activities. The programme has been rolled out across the whole community, supporting more than 40 events a year. Each week teams of firefighters go to schools, particularly those identified as having high needs, and conduct 60- to 90-minute sessions which include activities such as football and running for Year 5 and Year 6 children. In 2015 Fire Fit received funding to run a physical activity programme for schools in Toxteth, to improve long-term motivation for behavioural change. Fire Fit developed a partnership with researchers from Liverpool John Moores University to examine the effects of the programme. The study found that in comparison to regular physical education, classes that Fire Fit developed increased levels of motivation for physical activity and engaged more children from vulnerable groups. Girls, in particular, benefited from the non-competitive environment of the sessions and showed an increase in long-term uptake of physical activity. The research team which is now led by firefighters is exploring how to increase volunteer coach participation to successfully expand the Fire Fit programme. Another element of the Fire Fit brand is a £5.2 million purpose-built youth centre with sporting facilities which opened in 2013. The Fire Fit Hub was built with funding from the Merseyside Fire and Rescue Service, the Department for Education and Liverpool City Council. Most recently the Fire Fit programme developed a strategic alliance with Liverpool Football Club Foundation Kicks Programme, the official charity of Liverpool Football Club, to work in five of the most deprived areas of the region. The programme uses football and the strong brand of LFC as the 'hook' to engage with teenagers and young adults and offers a range of educational sessions from the Fire Services and other agencies, tackling wider issues such as alcohol and drug abuse, road safety and knife crime.<sup>129</sup>

There is a clear consensus among policymakers and health system leaders across Europe that better integration of the healthcare and social services systems has the potential to simultaneously address the multiple underlying issues of health inequality and reduce overall costs. However, all the countries examined in this report struggle to implement integrated solutions at a sufficient pace and scale.



## Case example 15: Co-designing integrated care with all local populations (Sweden)

Jönköping County Council is a regional government authority serving 340,000 people in southern Sweden. It plans, funds and provides health services for the population working in partnership with local government to ensure that these services are connected with other services and policies. Jönköping has a high degree of autonomy over decision-making as a result of Sweden's system of devolved government. For more than 20 years the Council has pursued a vision for its residents of a good life in an attractive county. People are engaged in health dialogues at different stages in their lives to discuss their own health and discover intrinsic motivations that can be used to stimulate healthy behaviours. When people require support from health and social care services, professionals work in partnership with patients and their families to design services around the outcomes that matter to them. Jönköping's Passion for Life programme, which is targeted at older age citizens, uses group meetings to increase older people's social connections and provide support to empower them to lead healthy lives. Meetings (called 'life cafes') are held in different places depending on the topic discussed – for example, in gyms if the focus is on exercise – and are supported by coaches and volunteers. The 'life café' model has been adapted to increase social connections for different population groups. This includes group meetings focused on the needs of minority populations, intergenerational issues and connecting people with similar medical conditions so that they can support each other to manage their own health. Jönköping performs well on a range of population health measures when compared with other Swedish regions. It ranks as one of the highest in terms of life expectancy and proportion of people reporting good health and among the lowest in terms of avoidable mortality rates (such as deaths related to smoking). It also ranks highly in the number of people reporting having discussions about their lifestyles in primary care. The county's work on improving care for older people has led to significant reductions in hospital admissions for this group.<sup>130, 131</sup>



## Case example 16: Connecting to Care programme in Saskatchewan (Canada)

Launched in the pilot cities of Regina and Saskatoon in 2015 with initial government funding of C\$1.5 million, Connecting to Care builds on the 'hotspotting' approach, which searches administrative data to identify the subset of patients who account for a disproportionate level of healthcare utilisation and costs. According to the Saskatchewan Health Quality Council, 1 per cent of Saskatchewan's patients accounted for approximately 21 per cent of hospital costs. Connecting to Care uses proactive outreach to prevent hospitalisations and emergency department visits by focusing on the timely use of community-based services, including support for medical, mental health and addiction treatments, as well as assistance with social needs. A team of providers, including a nurse, counsellors and wellness advocates coordinates and oversees personalised plans for each patient in the Connecting to Care programme. Patients are selected on the basis of their prior healthcare use and identified needs, as well as healthcare provider referrals. Technology plays a critical role in the programme, including the use of electronic health records (EHRs), connections with community support partners and mobile phones to check in with clients. While formal evaluations of the two pilot programmes are not yet publicly available, the Regina pilot has reportedly seen reductions in both emergency visits and hospitalisations. Reductions in hospitalisation is significant and an average of C\$1,400 was saved per each avoided day of hospital care.<sup>132</sup>

# Making the difference

“Health inequalities and social determinants of health are not a footnote to the determinants of health. They are the main issue.”

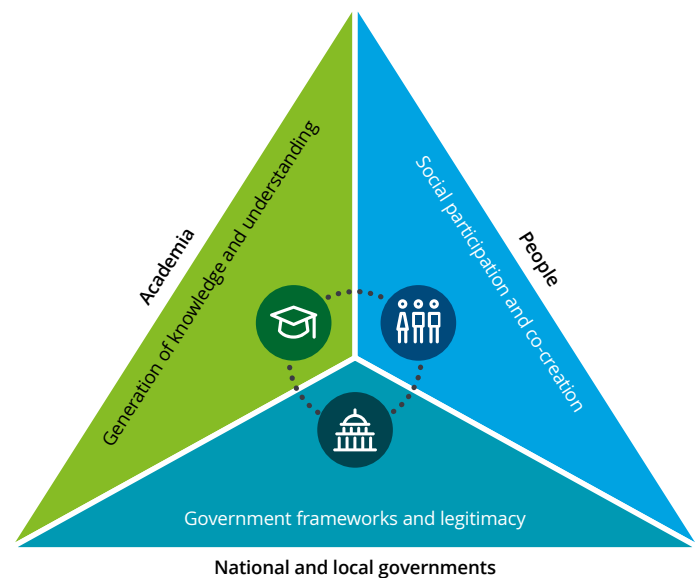
**Sir Michael Marmot<sup>133</sup>**

The evidence presented in this report illustrates the dilemma that many high-income countries find themselves in. On the one hand, medical science and technologies have provided the tools and information to drive dramatic advances in health outcomes; on the other hand, many countries are seeing avoidable health inequalities between the better-off and worse-off increasing.

Indeed, in most major cities in high-income countries there is an extremely wide social gradient in life expectancy running from the most affluent areas to the most deprived both in terms of life expectancy and disability free life years. For example, the social gradients across London, Glasgow and New York all show around a 20-year gap in life expectancy.<sup>134</sup>

Most Western European countries, despite their mature health and social services systems, have struggled to tackle the causes and impact of health inequalities and nowhere is this more evident than in the challenge presented by vulnerable families. These families have multiple and complex problems, including parents who do not even consider a decent job an achievable goal and children who are at serious risk of a lifetime of disadvantage, from cradle to grave. Historically, these families have often received services that have tried to respond to individual problems and often at times of crisis – whether truancy, domestic violence, anti-social behaviour or unemployment. However, the failure to tackle these causes effectively is often rooted in a siloed and reactive approach, rather than delivering integrated services and cross-sector actions. This report has deliberately focused on the most disadvantaged groups of society, those vulnerable or troubled families, in the belief that tackling their inequalities will lay the foundation for reducing health inequalities more generally.

**Figure 16. The triangle that moves the mountain**



Source: WHO, 2009

Figure 16 illustrates the need for a trilateral partnership approach to effect change involving academic researchers, policymakers and the wider public working together to address the enormous social and economic challenge of health inequalities.<sup>135</sup> A data- and evidence-driven understanding of interacting factors needs to be translated into policy interventions that are co-created, empower the citizen and meet local needs. Policymakers need to ensure that governance frameworks provide legitimacy and authority over the deployment of resources based on the evidence presented and public support.

The examples of good practice throughout this report highlight that sustainable change is achievable, if stakeholders are prepared to learn from what has worked elsewhere, and come together to work across institutional and professional boundaries. Allowing traditional boundaries between service providers and users to become 'porous' is pivotal for success. Collaboration can achieve what lies beyond the effective scope and capabilities of any individual stakeholder. This includes peer-to-peer networks and shifting skills, competencies and accountabilities. Key stakeholders from multiple agencies, national and local governments, civil society and accountable private sector organisations need to work with citizens and take collective decisions on how and where to invest in joint actions to achieve better outcomes.

Successful initiatives share a coordinated, case management approach with a community-based gatekeeping point for accessing services. They include planning for stronger social protection and building healthy and cohesive communities, and show the importance of overcoming short-term thinking as well as the fragmentation of service delivery.

After a certain point, increasing overall spending on healthcare does not equate to better health, although spending on prevention and early interventions can and does make a difference, especially in the early years of life and as people start to become frail and more reliant on support to remain independent. However, as our previous report, *Vital Signs: How to deliver better healthcare across Europe*, shows investment in prevention across Europe has declined since 2009, following the global financial crisis.<sup>136</sup> Indeed, in 2013 funding directed at prevention across European countries averaged only three per cent.

At the same time, per-capita spending on social services, benefits and publicly funded infrastructure has also reduced as governments seek to keep up with the growing demand for services at a time of increasing resource constraints. These difficulties are exacerbated when it comes to collaboration across funding and operational silos, leading to difficult discussions on how to raise and allocate funding across sectors for interventions that will tackle the social determinants of health, and for which outcomes are likely to be several years down the road.

Our research has identified the following key actions for stakeholders to break the dependency cycle and reduce the health inequalities experienced by vulnerable families.

A data- and evidence-driven understanding of interacting factors needs to be translated into policy interventions that are co-created, empower the citizen and meet local needs. Policymakers need to ensure that governance frameworks provide legitimacy and authority over the deployment of resources based on the evidence presented and public support.



## Key actions for stakeholders



**Policymakers in national and local governments** need to develop programmes to help their population become more resilient, and in particular to tackle the complex problems of their least well-off and most disadvantaged members of society. Actions that strengthen the intrinsic resilience of communities and populations include:

- combining policies across the life span that harness synergies and follow the approach of proportionate universalism, where policies are directed at everyone but provide the strongest support to the most vulnerable
- providing public services at a local level, based on a single citizen identifier, to enable real-time monitoring of the effects of interventions. Cross-country sharing of evidence on intervention effectiveness will help all governments model the return from investment in social programmes, for example, early childhood interventions where the outcomes can take years to become apparent
- reducing poverty through strategies that address income inequalities and support equality of opportunity and outcomes
- securing the success of the above policies by providing adequate health and social care funding. This includes new models of integrated, citizen-centric funding in relation to planning, commissioning and provision of services to avoid cost-shifting and ensure incentives are aligned across all parts of the system.



**Public service providers** and their workforce need to continue to develop new patterns of working collaboratively across professional, institutional and organisational boundaries. These include:

- further integrating health promotion and prevention as a core objective into the daily routines of the wider public sector workforce, including teachers, fire and rescue services, housing officials and police
- undertaking a standardised assessment of the social conditions of the individual and families at first point of contact with public services, especially healthcare
- applying insights gained from social determinants of health scores and other predictive models to inform decision-making and proactive prescribing of social and clinical interventions
- signposting to other services and social prescribing where appropriate
- agreeing a key worker approach to act as gatekeeper to reduce the multitude of unconnected services and professionals surrounding the families with disparate and repetitive assessments, thresholds, appointments and measures
- focusing relentlessly on measurably improved outcomes for families.



**Academic partnerships** play an important role in the ongoing research to unravel the complex interconnections of social determinants of health and health outcomes. Research should focus on:

- developing and applying innovative analytical tools to health economics research
- aggregating and segmenting population data to give a real-time picture of the population being served
- continuous tracking and analysis of outcomes as well as return on investment.



**Third sector and private sector organisations** need to participate in sustainable relationships to support the use of social prescribing as well as to counteract consequences of poor working and production conditions on the health of employees and neighbourhoods. Actions include:

- engaging in sustainable business practices that reduce the environmental impact on health and safety
- improving workplace safety and job security
- partnering in public-private partnership interventions that address social determinants of health.



**Individuals and families** should be encouraged and supported to engage in the co-design and co-delivery of interventions, which are based on individual skills and capabilities and supported by initiatives to improve the health literacy of citizens. While this is generally easier for those less affected by social disadvantages, tailored interventions can help all individuals develop the confidence to engage with their own health and wellbeing, for example by encouraging active participation in programmes offered by local communities.



**All stakeholders** should consider the role of analytics and digital technology to help provide more efficient and cost effective support across the range of interventions, including:

- using financial modelling tools to assess fund flows and pay for health and social outcomes
- information sharing, albeit challenging, is key for whole family working and enables problems to be tackled more effectively
- integrating analytics and interoperable IT across all public services
- increasing transparency through data visualisation tools and dashboards that monitor system performance and indicate high-risk areas in real time
- applying sophisticated machine learning and software models that predict risks at an aggregate population and individual level
- deploying data-driven triggers that automate communication with citizens, making use of behavioural insights and choice architecture to optimise citizen engagement
- developing digital platforms to make resources and knowledge more accessible, encouraging adoption of strategies that have worked elsewhere
- providing education and training to citizens in the use of digital technology.

Across Europe there is significant scope for all stakeholders to work together more effectively to tackle the social determinants of health. Reducing health inequalities is a moral and economic imperative in order to secure a healthy and sustainable future for everyone.

# Endnotes

1. On the Mechanistic Interpretation of Life, Rudolf Virchow, Disease, Life, and Man: Selected Essays by Rudolf Virchow, Stanford University Press, 1958.
2. Constitution of WHO: Principles, 2017. See also: <http://www.who.int/about/mission/en/>
3. Life expectancy at birth, OECD, 2016. See also: [http://stats.oecd.org/index.aspx?DataSetCode=HEALTH\\_STAT](http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT)
4. OECD Health at a Glance: Europe 2016, OECD, 2016. See also: [http://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe\\_23056088](http://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe_23056088)
5. The Spirit Level: Why More Equal Societies Almost Always Do Better, The Equality Trust, 2009. See also: <https://www.equalitytrust.org.uk/resources/the-spirit-level>
6. Evidence on social determinants of health, World Health Organization, 2017. See also: [http://www.who.int/social\\_determinants/themes/en/](http://www.who.int/social_determinants/themes/en/)
7. Copyrighted and published by Project HOPE/Health Affairs as: J. Michael McGinnis, Pamela Williams-Russo, and James R. Knickman "The Case For More Active Policy Attention To Health Promotion" Health Affairs (Millwood) 2002, Vol. 21, No. 2, 78-93. The published article is archived and available online at [www.healthaffairs.org](http://www.healthaffairs.org).
8. "Health Policy Brief: The Relative Contribution of Multiple Determinants to Health Outcomes," Health Affairs, August 21, 2014. Health Policy Briefs are produced under a partnership of Health Affairs and the Robert Wood Johnson Foundation. See also: [http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief\\_id=123](http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=123)
9. Broader determinants of health, King's Fund, 2017. See also: <https://www.kingsfund.org.uk/time-to-think-differently/trends/broader-determinants-health>
10. Government expenditure by function, Eurostat, 2017. See also: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Government\\_expenditure\\_by\\_function\\_%E2%80%93\\_COFOG#General\\_government\\_expenditure\\_by\\_function](http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_by_function_%E2%80%93_COFOG#General_government_expenditure_by_function)
11. Evidence on social determinants of health, World Health Organization, 2017. See also: [http://www.who.int/social\\_determinants/themes/en/](http://www.who.int/social_determinants/themes/en/)
12. Epigenetic Epidemiology: Promises for Public Health Research, Environmental and Molecular Mutagenesis, 2014. See also: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4011487/>
13. Evidence on social determinants of health, World Health Organization, 2017. See also: [http://www.who.int/social\\_determinants/themes/en/](http://www.who.int/social_determinants/themes/en/)
14. The Social Determinants of Health: It's Time to Consider the Causes of the Causes, Public Health Reports, 2014. See also: <http://europecpmc.org/articles/PMC3863696>
15. Life expectancy by age, sex and NUTS2 region, Eurostat, 2015. See also: <http://ec.europa.eu/eurostat/cache/RCL/#?vis=nuts2.population&lang=en>.
16. Health at a Glance: Europe 2016, OECD, 2016. See also: <http://www.oecd.org/health/health-at-a-glance-europe-23056088.htm>
17. Healthcare expenditure per capita, PPP (constant 2011 International \$), World Bank, 2014. See also: <http://data.worldbank.org/indicator/SH.XPD.PCAP.PP.KD>
18. Changes in mortality inequalities over two decades: register based study of European countries, BMJ, 2016. See also: <http://www.bmj.com/content/353/bmj.i1732.full.pdf>
19. Economic costs of health inequalities in the European Union, BMJ, 2011. See also: <https://www.ncbi.nlm.nih.gov/pubmed/21172799>
20. Ibid.
21. The cost of inequality, The Inequality Trust, 2014. See also: <https://www.equalitytrust.org.uk/sites/default/files/The%20Cost%20of%20Inequality.pdf>
22. Vulnerability, Coping and Policy, IDS Bulletin, 1989. See also: <http://onlinelibrary.wiley.com/doi/10.1111/j.1759-5436.1989.mp20002001.x/abstract>
23. Human Development Report 2014, United Nations Development Programme, 2014. See also: <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>
24. Analyse af personhenførbare udgifter i Københavns Kommune, Deloitte Statsautoriseret Revisionspartnerselskab, 2017. See also: <https://www.kk.dk/sites/default/files/edoc/15953e3f-305b-49d4-a140-7fe719ef15fd/adaed081-5880-4c9d-aeb3-d56157f369bf/Attachments/15260077-18415713-1.PDF> [Report only available in Danish]
25. Human Development Report 2014, United Nations Development Programme, 2014. See also: <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>
26. Integrating Social Services for Vulnerable Groups, OECD, 2015. See also: <http://dx.doi.org/10.1787/9789264233775-5-en>
27. Analyse af personhenførbare udgifter i Københavns Kommune, Deloitte Statsautoriseret Revisionspartnerselskab, 2017. See also: <https://www.kk.dk/sites/default/files/edoc/15953e3f-305b-49d4-a140-7fe719ef15fd/adaed081-5880-4c9d-aeb3-d56157f369bf/Attachments/15260077-18415713-1.PDF> [Only available in Danish]
28. Integrating Social Services for Vulnerable Groups, OECD, 2015. See also: <http://dx.doi.org/10.1787/9789264233775-5-en>
29. Human Development Report 2014, United Nations Development Programme, 2014. See also: <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>
30. Ibid.
31. The Health Gap, M. Marmot, Bloomsbury Publishing, 2015.
32. Trends in Maternal Mortality: 1990-2015, Unicef, 2015. See also: [https://data.unicef.org/wp-content/uploads/2015/12/Trends-in-MMR-1990-2015\\_Full-report\\_243.pdf](https://data.unicef.org/wp-content/uploads/2015/12/Trends-in-MMR-1990-2015_Full-report_243.pdf)
33. Health, Nutrition and Population Data and Statistics, The World Bank, 2017. See also: <http://datatopics.worldbank.org/hnp/>
34. Social Inequalities in the Leading Causes of Early Death: A Life Course Approach (Commissioned by the Department of Health), UCL Institute of Health Equity, 2015. See also: <http://www.instituteoftheequity.org/resources-reports/social-inequalities-in-the-leading-causes-of-early-death-a-life-course-approach/social-inequalities-in-the-leading-causes-of-early-death-a-life-course-approach.pdf>
35. State of child health Report 2017, Royal College of Paediatrics and Child Health, 2017. See also: <http://www.rcpch.ac.uk/system/files/protected/page/SoCH%202017%20UK%20web%20updated.pdf>

36. Inequality and mental disorders: opportunities for action, *The Lancet*, 2013.
37. The impact of maternal smoking during pregnancy on depressive and anxiety behaviors in children: the Norwegian Mother and Child Cohort Study, *BMC Medicine*, 2015. See also: <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-014-0257-4>
38. Social Inequalities in the Leading Causes of Early Death: A Life Course Approach (Commissioned by the Department of Health), UCL Institute of Health Equity, 2015. See also: <http://www.instituteoftheequity.org/resources-reports/social-inequalities-in-the-leading-causes-of-early-death-a-life-course-approach/social-inequalities-in-the-leading-causes-of-early-death-a-life-course-approach.pdf>
39. Familial risk of premature cardiovascular mortality and the impact of intergenerational occupational class mobility, *Social Science and Medicine*, 2012.
40. Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: a systematic analysis, *The Lancet*, 2010.
41. How experience gets under the skin to create gradients in developmental health, *Annual Review of Public Health*, 2010. See also: <http://www.annualreviews.org/doi/10.1146/annurev.publhealth.012809.103538>
42. The early catastrophe, *American Educator*, 1995. See also: <https://www.aft.org/sites/default/files/periodicals/TheEarlyCatastrophe.pdf>
43. Twenty Years after "Meaningful Differences," It's Time to Reframe the "Deficit" Debate about the Importance of Children's Early Language Experience, *Human Development*, 2015.
44. Epigenetic programming by maternal behaviour, *Nature Neuroscience*, 2004. See also: <http://www.nature.com/neuro/journal/v7/n8/abs/nn1276.html>
45. An attachment perspective on psychopathology, *World Psychiatry*, 2012. See also: <http://onlinelibrary.wiley.com/doi/10.1016/j.wpsyc.2012.01.003/full>
46. NHS Right Care Atlas of Variation, NHS England, 2015. See also: <http://fingertips.phe.org.uk/profile/atlas-of-variation>
47. Midwife-led maternity care in Ireland – a retrospective cohort study, *BMC Pregnancy and Childbirth*, 2017. See also: <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-017-1285-9>
48. Place of birth in Europe, WHO Europe. See also: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0010/277741/Place-of-birth-in-Europe.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0010/277741/Place-of-birth-in-Europe.pdf?ua=1)
49. Pause- creating space for change, *Pause*, 2017. See also: <http://www.pause.org.uk/wp-content/uploads/2017/04/Pause-Brochure-2017.pdf>
50. About Pause, *Pause* 2017. See also: <http://www.pause.org.uk/aboutpause>
51. Education Secretary announces extra investment in social care, Department for Education, 2016. See also: <https://www.gov.uk/government/news/education-secretary-announces-extra-investment-in-social-care>
52. Socioeconomic inequality and caries: a systematic review and meta-analysis, *Journal of Dental Research*, 2015. See also: <https://www.ncbi.nlm.nih.gov/pubmed/25394849>
53. Effectiveness of a preventive educational programme on the oral health of preschool children, *Promotion and Education*, 2007. See also: <https://www.ncbi.nlm.nih.gov/pubmed/18154225>
54. Children paying a high price for growing inequality, OECD How's Life? report finds, OECD, 2015. See also: <http://www.oecd.org/newsroom/oecd-s-how-s-life-shows-children-paying-a-high-price-for-growing-inequality.htm>
55. Ibid.
56. Are psychosocial factors mediators of socioeconomic status and health connections? A progress report and blueprint for the future, *Annals of the New York Academy of Science*, 2010. See also: <http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2009.05332.x/abstract;jsessionid=06DEC2E6A160226BC4D2D315BE8073B0.f02t02>
57. Childhood poverty, chronic stress, and adult working memory. *Proceedings of the National Academy of Sciences of the United States of America*, 2009. See also: <http://www.pnas.org/content/106/16/6545.full>
58. Maternal employment and child socio-emotional behaviour in the UK: longitudinal evidence from the UK Millenium Cohort Study, *Journal of Epidemiology and Community Health*, 2012. See also: <http://jech.bmj.com/content/early/2011/01/10/jech.2010.109553>
59. Integrating Social Services for Vulnerable Groups, OECD, 2015. See also: <http://dx.doi.org/10.1787/9789264233775-5-en>
60. Child Deprivation, Multidimensional poverty and monetary poverty in Europe, Innocenti Working Paper, Unicef, 2016. See also: [https://www.unicef-irc.org/publications/pdf/iwp\\_2012\\_02.pdf](https://www.unicef-irc.org/publications/pdf/iwp_2012_02.pdf)
61. *The Health Gap*, M. Marmot, publisher, 2015.
62. Child Deprivation, Multidimensional poverty and monetary poverty in Europe, Innocenti Working Paper, Unicef, 2016. See also: [https://www.unicef-irc.org/publications/pdf/iwp\\_2012\\_02.pdf](https://www.unicef-irc.org/publications/pdf/iwp_2012_02.pdf)
63. Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence, *Journal of Adolescent Health*, 2006. See also: [http://www.jahonline.org/article/S1054-139X\(05\)00298-3/fulltext](http://www.jahonline.org/article/S1054-139X(05)00298-3/fulltext)
64. OECD Family database: Child Well-being Module, OECD, 2017. See also: <http://www.oecd.org/els/family/oecdfamilydatabasechildwell-beingmodule.htm>
65. Material deprivation, Eurostat, 2017. See also: <http://ec.europa.eu/eurostat/data/database>
66. Mental Health in Education Policies, Joint Action on Mental Health and Wellbeing. See also: <http://www.mentalhealthandwellbeing.eu/assets/docs/publications/PolicyBrief%20Education.pdf>
67. A comprehensive meta-analysis of Triple P - Positive Parenting Program using hierarchical linear modelling: Effectiveness and moderating variables. *Clinical Child and Family Psychology Review*, 2008. See also: <https://link.springer.com/article/10.1007/s10567-008-0033-0>
68. Population-based prevention of child maltreatment: The U.S. Triple P system population trial. *Prevention Science*, 2009. See also: <https://link.springer.com/article/10.1007/s11211-009-0123-3>
69. About the CDC-Kaiser ACE Study, Centers for Disease Control and Prevention, 2017. See also: <https://www.cdc.gov/violenceprevention/acestudy/about.html>
70. Childhood adversity and adult chronic disease: an update from ten states and the District of Columbia, 2010, *American Journal of Preventive Medicine*, 2015.

71. EPODE for the Promotion of Health Equity, 2017. See also: <http://www.epehistory.eu/>
72. 0-24-samarbeidet, Government Norway, 2016. See also: <https://www.regjeringen.no/no/tema/utdanning/grunnopplaring/artikler/0-24-samarbeidet/id2511690/> [Article only available in Norwegian]
73. Læringsnotat (2016) Felles problem - felles løsning? Lærdommer fra 0-24-samarbeidet, difi, 2016. See also: <https://www.difi.no/rapport/2017/01/laeringsnotat-2016-felles-problem-felles-losning-laerdommer-fra-0-24-samarbeidet> [Report only available in Norwegian]
74. A school intervention for mental health literacy in adolescents: effects of a non-randomized cluster controlled trial, *BMC Public Health*, 2013. See also: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3850725>
75. Promoting mental health saves money, Partnership for Children, 2014. See also: <http://www.partnershipforchildren.org.uk/blog/4/276/Promoting-mental-health-saves-money.html>
76. Zippy's Friends, Partnership for Children, 2017. See also: <http://www.partnershipforchildren.org.uk/teachers/zippy-s-friends-teachers/academic-achievement.html>
77. Work and its role in shaping the social gradient in health. *Annals of the New York Academy of Sciences*, 2010. See also: <https://dx.doi.org/10.1111/2Fj.1749-6632.2009.05338.x>
78. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis, *The Lancet*, 2009.
79. Effects of the 2008 recession on health: a first look at European data, *The Lancet*, 2011.
80. Suicides associated with the 2008-10 economic recession in England: time trend analysis, *BMJ*, 2012. See also: <http://www.bmj.com/content/345/bmj.e5142>
81. Suicide in young adults: psychiatric and socio-economic factors from a case-control study. *BMC Psychiatry*, 2014. See also: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-14-68>
82. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *The Lancet*, 2009.
83. Income-related inequalities in chronic conditions, physical functioning and psychological distress among older people in Australia: cross-sectional findings from the 45 and up study, *BMC Public Health*, 2014. See also: <https://www.ncbi.nlm.nih.gov/pubmed/25048295>
84. Sixth European Working Conditions Survey, Eurofound, 2015. See also: [https://www.eurofound.europa.eu/surveys/data-visualisation/sixth-european-working-conditions-survey-2015?locale=EN&dataSource=EWCS2016&media=png&width=740&question=y15\\_88&plot=euBars&countryGroup=linear&subset=agecat\\_3&subsetValue=All](https://www.eurofound.europa.eu/surveys/data-visualisation/sixth-european-working-conditions-survey-2015?locale=EN&dataSource=EWCS2016&media=png&width=740&question=y15_88&plot=euBars&countryGroup=linear&subset=agecat_3&subsetValue=All)
85. Vulnerability of families with children: Major risks, future challenges and policy recommendations, *Families and Societies*, 2015. See also: <http://www.familiesandsocieties.eu/wp-content/uploads/2015/11/WP49MynarskaEtAl2015.pdf>
86. Natural solutions to tackling health inequalities, UCL Institute of Health Inequity, 2014. See also: <http://www.instituteoftheequity.org/resources-reports/natural-solutions-to-tackling-health-inequalities/natural-solutions-to-tackling-health-inequalities.pdf>
87. How do type and size of natural environments relate to physical activity behavior?, *Health& Place*, 2017.
88. Healthy City, Healthy Lives...wider collaboration and promoting wellbeing, Graham Marshall, 2017. See also: [http://www.westminsterforumprojects.co.uk/forums/slides/Graham\\_Marshall\\_Health\\_Housing.pdf](http://www.westminsterforumprojects.co.uk/forums/slides/Graham_Marshall_Health_Housing.pdf)
89. Obesity by income quintile, Eurostat, 2014. See also: <http://ec.europa.eu/eurostat/data/database>
90. Smoking of tobacco products by income quintile, Eurostat, 2014. See also: <http://ec.europa.eu/eurostat/data/database>
91. Changes in mortality inequalities over two decades: register based study of European countries, *BMJ*, 2016. See also: <http://www.bmj.com/content/353/bmj.i1732>
92. Association between fear of crime and mental health and physical functioning, *American Journal of Public Health*, 2007. See also: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2040373/pdf/0972076.pdf>
93. Wie verbessert man die Gesundheit arbeitssuchender Menschen?, *Team Gesundheit*, 2016. See also: <http://www.jobfit-ansatz.de/> [Article only available in German]
94. Modellprojekt zur Verknuepfung von Arbeits- und Gesundheitsfoerderung im Setting: Gesamtbericht zur Evaluation, Federal Employment Agency Germany, National Association of Statutory Health Insurance Funds, 2016. See also: [http://www.jobfit-ansatz.de/assets/evaluationsbericht\\_modellprojekt.pdf](http://www.jobfit-ansatz.de/assets/evaluationsbericht_modellprojekt.pdf) [Article only available in German]
95. Reducing violent crime, University of Cardiff, 2017. See also: <http://www.cardiff.ac.uk/research/impact-and-innovation/research-impact/reducing-violent-crime>
96. An economic evaluation of anonymised information sharing in a partnership between health services, police and local government for preventing violence-related injury, 2013. See also: <http://injuryprevention.bmj.com/content/20/2/108>
97. Urban Diabetes: Understanding the challenges and opportunities, cities changing diabetes, 2015. See also: <http://www.citieschangingdiabetes.com/content/dam/cities-changing-diabetes/magazines/CCD-briefing-book.PDF>
98. Health at a Glance: Europe 2016, OECD, 2016. See also: <http://www.oecd.org/health/health-at-a-glance-europe-23056088.htm>
99. Facing the facts: The truth about ageing and development, Age International, 2016?. See also: <https://www.ageinternational.org.uk/Documents/Age%20International%20Facing%20the%20facts%20report.pdf>
100. The dynamics of ageing: Evidence from the English Longitudinal Study of Ageing 2002-12 (Wave 6), *English Longitudinal Study of Ageing*, 2014. See also: <http://www.elsa-project.ac.uk/publicationDetails/id/7411>
101. Mental health and older adults, WHO, 2016. See also: <http://www.who.int/mediacentre/factsheets/fs381/en/>
102. Ibid.
103. The State of Ageing and Health in Europe, International Longevity Centre-UK and The Merck Company Foundation, 2006. See also: [http://www.ilcuk.org.uk/files/pdf\\_pdf\\_4.pdf](http://www.ilcuk.org.uk/files/pdf_pdf_4.pdf)
104. Ibid

105. People in the EU – statistics on an ageing society, 2015. See also: [http://ec.europa.eu/eurostat/statistics-explained/index.php/People\\_in\\_the\\_EU\\_%E2%80%93\\_statistics\\_on\\_an\\_ageing\\_society](http://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_%E2%80%93_statistics_on_an_ageing_society)
106. 2010 to 2015 government policy: housing for older and vulnerable people, 2015. UK Government. See also: <https://www.gov.uk/government/publications/2010-to-2015-government-policy-housing-for-older-and-vulnerable-people/2010-to-2015-government-policy-housing-for-older-and-vulnerable-people>
107. Briefing: The Health and Care of Older People in England 2015, AgeUK, 2015. See also: <http://www.cpa.org.uk/cpa/docs/AgeUK-Briefing-TheHealthandCareofOlderPeopleinEngland-2015.pdf#page29>
108. The cost of poor housing to the NHS, Building Research Establishment, 2015. See also: <https://www.bre.co.uk/filelibrary/pdf/87741-Cost-of-Poor-Housing-Briefing-Paper-v3.pdf>
109. Housing in later life, AgeUK, 2014. See also: <http://www.ageuk.org.uk/Documents/EN-GB/Political/Age%20UK%20ID201813%20Housing%20Later%20Life%20Report%20-%20final.pdf?dtrk=true>
110. Housing deprivation rate by number of item - EU-SILC survey, Eurostat, 2014. See also: <http://ec.europa.eu/eurostat/data/database>
111. Life expectancy and healthy life expectancy at age 65, OECD, 2016. See also: [http://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2016/life-expectancy-and-healthy-life-expectancy-at-age-65\\_health\\_glance\\_eur-2016-7-en](http://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2016/life-expectancy-and-healthy-life-expectancy-at-age-65_health_glance_eur-2016-7-en)
112. Health care utilization and expenditures in persons receiving social assistance in 2012: evidence from Switzerland. Global Journal of Health Science, 2015. See also: <https://www.ncbi.nlm.nih.gov/pubmed/25946912>
113. Ageing in the Twenty-First Century: A Celebration and A Challenge, United Nations Population Fund and HelpAge International, 2012. See also: <http://www.unfpa.org/sites/default/files/pub-pdf/Ageing%20report.pdf>
114. Broadband and connectivity – individuals, Eurostat, 2013. See also: <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>
115. Bridging the digital divide in the EU, EU Parliament, 2015. See also: [http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/573884/EPRS\\_BRI\(2015\)573884\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/573884/EPRS_BRI(2015)573884_EN.pdf)
116. Digital inclusion evidence review, age UK, 2013. See also: <http://www.ageuk.org.uk/Documents/EN-GB/For-professionals/Research/Age%20UK%20Digital%20Inclusion%20Evidence%20Review%202013.pdf?dtrk=true>
117. Individuals – internet use, European Commission, 2016. See also: [http://ec.europa.eu/eurostat/data/database?p\\_id=NavTreeportletprod\\_WAR\\_NavTreeportletprod\\_INSTANCE\\_nPqeVbPXRmWQ&p\\_p\\_lifecycle=0&p\\_p\\_state=normal&p\\_p\\_mode=view&p\\_p\\_col\\_id=column-2&p\\_p\\_col\\_count=1](http://ec.europa.eu/eurostat/data/database?p_id=NavTreeportletprod_WAR_NavTreeportletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=1)
118. People in the EU - statistics on an ageing society, 2015. See also: [http://ec.europa.eu/eurostat/statistics-explained/index.php/People\\_in\\_the\\_EU\\_%E2%80%93\\_statistics\\_on\\_an\\_ageing\\_society](http://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_%E2%80%93_statistics_on_an_ageing_society)
119. Bridging the digital divide in the EU, EU Parliament, 2015. See also: [http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/573884/EPRS\\_BRI\(2015\)573884\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/573884/EPRS_BRI(2015)573884_EN.pdf)
120. The economics of housing and health, King's Fund, 2016. See also: <https://www.kingsfund.org.uk/publications/economics-housing-health>
121. Collaborative Research between Aston Research Centre for Healthy Ageing (ARCHA) and the ExtraCare Charitable Trust – The final report, Aston University. See also: <http://www.aston.ac.uk/lhs/research/centres-facilities/archa/extracare-project/>
122. Hyde Healthy Living Project wins prestigious Primary Care Team of the Year Award, Tameside and Glossop Care Together. See also: <https://www.caretogether.org.uk/news/latest-news/hyde-healthy-living-project-wins-prestigious-primary-care-te>
123. South Karelia Social and Health Care District, Renewing Health. See also: <http://www.renewinghealth.eu/south-karelia-social-and-health-care-district>
124. About the Public Health Monitor Utrecht, Public Health Monitor Utrecht, 2017. See also: <http://www.volksgezondheidsmonitor.nl/en/about-the-public-health-monitor-utrecht/page2.html>
125. Building a healthy future – An invitation to the city, City of Utrecht, 2016. See also: <https://www.utrecht.nl/fileadmin/uploads/documenten/6.generiek/English/2016-12-Building-a-healthy-future.pdf>
126. Deloitte Denmark analysis, Deloitte Statsautoriseret Revisionspartnerselskab, 2017.
127. Økonomisk analyse af udsatte familier [Economic analysis of vulnerable families], Center for Sundhedsøkonomisk Forskning, 2017. [Report only available in Danish]
128. Evaluering af Helhedsindsats for familier [Evaluation of Integrated family interventions] Oxford Research, 2016. [Report only available in Danish]
129. Fire & Health – Working Together, Merseyside Fire & Rescue Service, 2017. See also: [https://www.merseysidefire.gov.uk/aspx/pages/reports/pdf/MFRS\\_Binder\\_A5\\_FULLL\\_LoRes\\_Version.pdf](https://www.merseysidefire.gov.uk/aspx/pages/reports/pdf/MFRS_Binder_A5_FULLL_LoRes_Version.pdf)
130. About Passion for Life, Region Jönköping, 2016. See also: <http://plus.rjl.se/infopage.jsf?nodeId=33037>
131. Health Populations: Designing strategies to improve population health. WISH, 2016. See also: [https://www.ge.com/sites/default/files/WISH\\_Healthy\\_Pop\\_26.07.pdf](https://www.ge.com/sites/default/files/WISH_Healthy_Pop_26.07.pdf)
132. High-value health care - innovative approaches to global challenges, Deloitte LLP, 2016. See also: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-high-value-health-care.pdf>
133. Highlights From An Australian Interview With Sir Michael Marmot, epimonitor, 2011. See also: [http://www.epimonitor.net/Michael\\_Marmot\\_Interview.htm](http://www.epimonitor.net/Michael_Marmot_Interview.htm)
134. The Health Gap, M. Marmot, Bloomsbury Publishing, 2015.
135. "Triangle That Moves The Mountain" and Health Systems Reform Movement in Thailand, WHO, 2009 See also: [http://www.who.int/hrh/en/HRDJ\\_4\\_2\\_06.pdf](http://www.who.int/hrh/en/HRDJ_4_2_06.pdf)
136. Vital signs: How to deliver better healthcare across Europe, Deloitte Centre for Health Solutions, 2016. See also: <https://www2.deloitte.com/uk/en/pages/life-sciences-and-healthcare/articles/vital-signs.html>

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