International comparisons of health and wellbeing in adolescence and early adulthood

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In association with

ayph | Association for Young People's Health

Rakhee Shah, Ann Hagell and Ronny Cheung

About the report

Adolescence and young adulthood are generally thought of as healthy life stages. However, with young people making up approximately a fifth of the UK population, intervention during these key developmental years can lay the foundations for healthy lives in adulthood and all of the social, health and economic benefits this can bring.

While the importance of investment in the early years is broadly accepted, the comparable importance of the age period 10–24 years is sometimes neglected. This report explores how key indicators of the health and wellbeing of young people in the UK compare to those of their counterparts in a selection of similar high-income countries both within and outside of Europe.

The report shows that, despite observed improvements in health-related behaviours among adolescents and young adults, we compare poorly with other, similar countries in providing support to young people with long-term conditions to manage their care, and this appears to be getting worse.

Acknowledgements

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Contents

List of figures and tables

Tables

Foreword

In comparison with its predecessors, the NHS *Long Term Plan*, which sets out the way care in this country should be delivered given the new NHS financial settlement, is striking for its emphasis on improving the health of children.

This is welcome, and speaks directly to the report on health in early childhood published last year by the Nuffield Trust and the Royal College of Paediatrics and Child Health (RCPCH), which showed that health outcomes for young children in the UK are now worse than those in many similar countries. Despite overall child mortality rates being reduced, our progress in reducing infant mortality seemed to have stalled, and a subsequent report by the RCPCH showed that infant mortality had begun to rise after more than 100 years of continuous improvement. We were (and still are) lagging behind other high-income countries in many areas.

So, what of adolescents and young adults, who make up approximately a fifth of the UK population? As the World Economic Forum recently noted, adolescence is a time in which we take huge bounds, psychologically, biologically and socially. The forces shaping young people's lives today continue into adulthood and have a huge impact on the society we all live in.

And today's adolescents and young adults are not the same people as those of previous generations: on the whole, in recent years there has been a decline in underage drinking, fewer young people smoke, and illicit drug use among teenagers is decreasing.

It is therefore worrying, as this report by the Nuffield Trust and the Association for Young People's Health (AYPH) shows, that young people aged between 10 and 24 in the UK now experience worse health and wellbeing outcomes than those in many other similar countries. The UK has one of the highest rates of young people living with a long-term condition in the countries studied – and the burden that such illnesses are placing on young lives in this country is amongst the highest in the developed world. Young people in the UK are more likely to die from asthma than in any other European country studied, and gradual improvements on this front over the last decade have seemingly ground to a halt. Obesity is more prevalent among older adolescents in this country than in almost any other high-income nation, and the differences between the richest and poorest in this respect are stark.

Too often, it is assumed that if we can just get provision during the vital early years of life right, health and healthy behaviours will simply flourish into adolescence, and on seamlessly into adulthood.

This seems dangerously complacent. Yet the muted response to reductions in the funding of local authority services over the past five years, disproportionately affecting young people, suggests it may be a widespread view. A recent World Health Organization report on adolescent health in Europe noted with concern that the UK as a whole continues to lack a clear policy mandate that provides guidance on funding and policy priorities to meet the health needs of adolescents and early adults.

As the RCPCH, AYPH and others have acknowledged, the *Long Term Plan* and other recent policy developments show that steps are being made in the right direction: by 2028, the NHS in England will move to a 0–25 years service and towards service models for young people that offer person-centred and age-appropriate care. School-age adolescents will receive statutory health education from 2020, and measures to combat obesity have been prioritised. These are important shifts of emphasis: in a survey by the AYPH and other organisations consulting young people on how the *Long Term Plan* should improve health services, the loudest call was for youth-friendly services that understand the specific needs of young people.

But inequality remains a stubborn impediment to progress on all these fronts. The UK has amongst the highest levels of income inequality in the developed world. Social and economic circumstances have a profound impact on health, and young people are bearing the brunt of this: the New Policy Institute calculates that the poverty rate among young people is now higher than in any other age group. A decade earlier, children aged under 14 were more likely to be in poverty than young people, but this is no longer the case.

International comparisons are fraught with difficulty and should be read with a strong dose of realism: the countries chosen for study are always up for debate and direct comparisons should be avoided. Nevertheless, they do provide us with an opportunity to make an assessment of how we're performing in relation to countries very like ours. And at the moment, we aren't serious players among this group, and young people are losing out as a result. 10- to 24-year-olds in the UK today are making better choices regarding their health than ever, but the services we are providing to support them are failing to deliver at the standards found in similar countries.

This should sound the alarm for UK policy-makers. The renewed focus on young people signalled earlier this year in the *Long Term Plan* appears more necessary than ever: our collective futures may depend upon it.

Nigel Edwards
Chief Executive
Nuffield Trust

Emma Rigby
Chief Executive
Association for Young
People's Health

Professor Russell Viner
President
Royal College of Paediatrics
and Child Health

Summary

Young people aged 10–24 make up approximately a fifth of the population of most high-income countries and there are strong health and economic arguments for improving their health outcomes. This report summarises how 17 key indicators of the health and wellbeing of young people aged 10–24 vary in a selection of 19 similar high-income countries both within and outside of Europe.

The report offers policy-makers, commissioners, health care professionals and those working in other sectors an indication of where health outcomes for adolescents and young adults in the United Kingdom (UK) could be improved.

Despite some successes, the UK's performance on the 17 key health and wellbeing indicators highlighted in this report often lags behind that of the other 18 countries included in the analysis and there is much room for improvement.

The UK is performing least well in the following areas. It has:

- the highest rates of obesity for 15- to 19-year-olds among 14 European comparator countries
- the highest inequalities in obesity prevalence between the richest and poorest, apart from Finland, in countries where data are available
- the highest rate of young people aged 16–24 living with a longstanding condition among 14 European comparator countries apart from Finland and Sweden
- low rates of engagement in exercise by 11-year-olds in England and Wales
- the highest asthma death rate for those aged 10–24 among all 19 countries apart from Australia, New Zealand and the United States (US)
- the highest rate of adolescent girls aged 15–19 giving birth among all 19 countries apart from New Zealand and the US
- high percentage of young people aged 15-19 not in education, employment or training (NEET)

- high rates of severe material deprivation among 15- to 24-year-olds
- a high burden-of-disease rate for all causes and in particular for type 1 diabetes.

In addition, time trends within the UK suggest that some of these indicators are getting worse, including obesity, longstanding illness, severe material deprivation and exercise levels. Initial improvements in the number of asthma deaths have also stalled in the past few years.

The UK is performing in the middle of the group of similar high-income countries for several indicators, including cancer mortality, suicide death rates and health-related behaviours such as smoking, alcohol consumption and cannabis use. Trends in health-related behaviours have been going in a positive direction in the UK in recent years, with falls in smoking rates and rates for lifetime use of cannabis.

Areas where the UK is performing well in this international comparison include:

- low rates of road traffic injury deaths
- low all-cause mortality.

However, taking a closer look at the time trends in these more positive areas, it appears that initial improvements may have stalled. For example, decreases in mortality rates levelled out around 2013 and there is a concern that they may be getting worse. In addition, stark inequalities exist in road traffic injury death between those from the richest and those from the poorest backgrounds.

Table S.1 provides a summary of how the UK compares with the 18 comparator countries and the UK trend over the past decade for each of the 17 indicators.

Table S.1: Summary of the results

Indicator (and age range)	The UK relative to comparator countries (unless otherwise specified)	The UK trend over the past decade (unless otherwise specified)
Young people as a proportion of the total population (10–24)	Similar	Stable
Obesity prevalence (15–19)	Worse	Worsening
Longstanding illness (16–24)	Worse	Worsening
Exercise (England and Wales) (11)	Worse**	Worsening
Severe material deprivation (15–24)	Worse	Worsening
Adolescent birth rate (15–19)	Worse	Improving
Asthma death rate (10–24)	Worse	Improvement halted
Adolescent all-cause DALY rate (10–24)	Worse*	Improvement halted
Diabetes DALY rate (10–24)	Worse*	Stable
Not in education, employment or training (15–19)	Worse*	Improving
All-cause cancer mortality rate (10–24)	Similar	Improving
Daily smoking (18–24)	Similar	Improving
Alcohol consumption at least once a week (15)	Similar**	Improving
Cannabis use in the past 30 days (15)	Similar**	Improving
Suicide death rate (15–24)	Similar	Improvement halted
Adolescent mortality rate (10–19)	Better	Improvement halted
Road traffic injury death rate (10–24)	Better	Improvement halted
Road traffic injury DALY rate (10–24)	Better	Improving

Notes: The table reflects a heuristic approach to determining the UK's position relative to other countries, rather than a statistical assessment, and should be regarded only as a guide. Where data are presented separately for different age groups, we took an approximate average of the rankings. 'Worse' = in the bottom third of the relevant chart(s). 'Similar' = in the middle third of the relevant chart(s). 'Better' = in the top third of the relevant chart(s). 'Worsening' = the time trend worsened over the previous year (or more). 'Improvement halted' = the time trend was level for the previous year (or more) when before that it had been improving. 'Stable' = the time trend has been level for a number of years. 'Improving' = the time trend improved over the previous year (or more).
* borderline between worse and similar.
** ranks are different for different countries of the UK.

Conclusion

The international comparisons in this report have provided us with important messages about the state of health and wellbeing of young people aged 10–24 in the UK when compared with their counterparts in 18 other high-income countries, across 17 key indicators. Although there are some positive findings, the UK's performance on many indicators for this age group lags behind that of similar high-income countries, and there is much room for improvement. But some successes show that improvement is possible.

The UK performs less well than the comparator countries particularly in terms of the support given to young people with long-term health conditions to manage their care. Adolescents and young adults in the UK are more likely to die from asthma, and more likely to be obese and overweight, than their counterparts in the comparator countries. The burden of disability in adolescents, including from long-term conditions such as diabetes, is also greater in the UK.

This is happening at a time when more and more adolescents and young adults are making better choices about their health than at almost any other time in living memory. By contrast, health services, professionals and policy-makers are failing to live up to their part of the bargain, at best failing to keep pace with comparable countries, and at worst, falling behind. There are early signs already that we are putting decades of progress in young people's health in jeopardy. Our international comparisons tell us that we can, and must, do better.

There is an urgent need to prioritise and invest in the 10–24 age group to improve young people's current health outcomes and for a future healthy adult population. To improve the state of young people's health in the UK, we must take an approach across three broad categories: policy initiatives focusing on young people; the improvement of everyday practice; and specific action to reduce health inequalities.

1 Introduction

Health and wellbeing in adolescence and early adulthood are clearly linked to health outcomes later in adult life (Patton and others, 2016). While the importance of investment in the early years is broadly accepted, the comparable importance of the age period 10–24 years is sometimes neglected.

Yet there are many reasons why we need to invest in this age group. Young people transitioning from childhood to adulthood face a wide range of physical, psychological and sociological challenges (Sawyer and others, 2018). The first signs of many serious long-term conditions emerge at this age, including three-quarters of mental health problems (Kessler and others, 2005). In addition, adolescence is a time when risk-taking behaviours begin and lifelong behaviours such as smoking and drinking are set in place (Hagell and others, 2017).

There is some evidence that adolescent health is not improving at the same rate as health among younger children and older age groups (Viner and others, 2011). Therefore the 10–24 age group, who form the focus of this report, arguably offer a key opportunity for prevention and early intervention, laying down the foundations for a healthy life in the future.

There is also a strong economic argument for improving the health of young people aged 10–24 (Sheehan and others, 2017, The Lancet, 2017), with illness during this key transition stage of life leading to low educational attainment, unemployment and poor productivity (Hale and Viner, 2018).

This report complements a report that the Nuffield Trust published in 2018, which compared health and wellbeing in early childhood between the United Kingdom (UK) and 14 comparable countries (Cheung, 2018). The focus of that report was on the 0–4 age group, with some measures of health in the analysis covering later childhood. This report picks up the story to include young people as they transition to adulthood.

Definitions of age groups within the 10–24 age range

For this research we have followed the age bandings that the United Nations General Assembly (2018), UNICEF (2011) and the World Health Organization (2017a) have used, including:

- children: 0- to 18-year-olds

- adolescents: 10- to 19-year-olds

- young people: 10- to 24-year-olds

- young adults: 20- to 24-year-olds

- important sub-divisions: ages 10–14, 15–19 and 20–24.

There is some debate about these definitions – for example, the Lancet Commission has argued for extending the definition of adolescence up to the age of 24 – but at the time of writing these are the most widely adopted ones that are associated with the age groups (Sawyer and others, 2018).

How can international comparisons improve health outcomes in the UK?

This report explores how key indicators of the health and wellbeing of young people aged 10–24 in the UK compare to those of their counterparts in a selection of similar high-income countries both within and outside of Europe.

By presenting the available evidence on how the UK (or where UK data are not available, England) compares with similar countries and giving an indication of where health outcomes for adolescents and young adults in the UK could be improved, the report aims to inform decision-making for those working to improve health outcomes for adolescents and young adults at both national and local levels: policy-makers, commissioners, health care professionals and those from other sectors, such as education, employment and housing.

International comparisons, while compelling, must be interpreted with great care. There are considerable challenges in collecting high-quality, representative data that can be meaningfully compared across countries and contexts. Throughout the report we therefore draw attention to the limitations of the data and encourage readers to note these when using the findings to inform their own areas of work. However, when handled with care, these types of analyses offer a useful perspective on the effectiveness of system-wide policies that affect health over time, and valuable lessons for policy-makers on improving health outcomes and the quality of care at a population or country level.

Selection of indicators relating to health in adolescence and early adulthood

We selected data for presentation in this report primarily based on their relevance for understanding young people's health outcomes. We subjected potentially useful indicators to the following tests, and removed them if they did not meet the required standards:

- Have data from different countries been defined, collected and calculated in a similar-enough way to make comparisons meaningful?

- Are the data available from a large-enough number of other countries to make comparisons meaningful?

- Is it possible to break down the statistics to allow specific analysis for some or all of the 10–24 age group, separately from younger children and older adults?

Where possible, we have used standardised five-year age bands (10–14, 15–19 and 20–24) to acknowledge that outcomes and trends can vary hugely across the 10–24 age period. In some cases, indicators were only available for different age ranges, such as 16–24. Where this happened, it was often because of the purpose for which the data were collected in the first place, or concerns about asking sensitive questions of children under the age of 16.

Within each chapter (with the exception of Chapter 2), we begin the discussion of indicators by focusing on those where the UK does less well, and then we point out those where international comparisons show the UK in a more favourable light. All charts of indicators are ordered so that the better-performing countries are at the top of the charts and the less-well-performing countries are at the bottom.

It should be noted that the *absolute* level of the UK's achievement on any one indicator may not be the key issue; it may well be that the *direction of travel* is equally or more important. For example, if the latest data show that the UK is doing well on an indicator, but that performance is getting worse year on year, this indicates the possibility of poorer outcomes in the future. For this reason, we have tried, where possible, to follow the cross-national comparisons with a look at what we know about time trends for each indicator in the UK context, attempting to obtain data for the past two decades to be able to show a longer-term trend. The majority of the charts in this report that present time trends show results for a selection of illustrative countries in comparison with the UK (for example, the country with the most positive trend, the country with the most negative trend, and the UK), rather than trends for all 19 countries, which become difficult to interpret when they are all presented at once.

Selection of comparator countries

In this report we present comparisons between the UK and 18 other countries based on an approach outlined in a recent Nuffield Trust report on a major analysis of international health systems (Dayan and others, 2018). We selected countries from categories that included:

- the grouping of Western European nations in the European Union (EU) before 1 May 2004 (the 'EU15')
- the G7 group of the world's largest developed economies
- the Anglosphere, which brings together the UK with its close cultural and constitutional relatives.

There are some overlaps between these categories as, for example, the United States (US) is a member of both the G7 and the Anglosphere. We excluded city-states (such as Andorra and Monaco) from our analysis, in

case their commuter population distorted measures that are divided by resident population.

The 18 countries we compared the UK to are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Portugal, Spain, Sweden and the US. Throughout this report, all comparisons are between the UK and these 18 countries unless otherwise stated. Where possible, we present summary statistics for the UK as a whole. For some indicators, where data are available, and show very different results for England, Scotland and Wales, the three nations are shown separately. Where data are split out into these three nations, data for Northern Ireland is not presented as there were no comparable data available.

The selection of comparator countries for international comparisons is contentious. The choice will inevitably influence the interpretation of findings. For example, the exclusion of some Scandinavian countries such as Norway (which is not part of the EU), with traditionally excellent outcomes for adolescents, may mean that the UK compares better than it would if Norway were included. Meanwhile the inclusion of the US (as a member of the G7 and a comparable Anglosphere country), with rather poorer outcomes on some key indicators, may mean that the UK appears better than it might if the US were excluded. This report thus provides a potentially generous perspective on the UK's ranking. There is no perfect comparator group. However, our selection method follows rational and robust criteria with which to make meaningful comparisons and interpretations, has been published previously and is relevant to the topic.

Further information about the data used in this report

All the data we have used for our comparisons were publicly available at the time of writing. The Appendix outlines the main studies providing the data while the source of the data for each chart in this report is given below the chart. Excel spreadsheets containing the data are available to download from the Nuffield Trust's website.

2 Overall health of the adolescent and young adult population

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Headline findings

- Young people aged 10–24 form nearly a fifth of the UK population.

- The UK has a relatively low mortality rate for this age group, with the fifth-lowest rate out of the 19 high-income countries.

- The overall mortality rate for young people in the UK has been falling, until recently. The decrease in mortality rates stalled around 2012, and there were even slight rises in mortality for 20- to 24-year-olds between 2013 and 2016.

- Although mortality rates are low, the UK has a relatively high number of disability-adjusted life years (DALYs) for adolescents and young adults. This is a summary measure of years lost to ill-health, or the 'burden of disease'. Comparisons show the UK falling into the bottom half of the 19 comparator countries.

- In the UK, nearly one in five young people are estimated to be living with a longstanding condition or health problem, a relatively high rate in comparison with the other EU countries with whom comparisons could be made.

Size of the adolescent and young adult population

Young people aged 10–24 make up approximately a fifth of the population of most high-income countries. The proportion varies slightly depending on

the year from which the estimates are taken. The most recent (2017) mid-year estimates for the UK show that there are 11.6 million people in this age range, constituting 17.5% of the whole population (Office for National Statistics, 2018b). The number has remained stable over the past decade (Office for National Statistics, 2018b).

International comparisons on the proportion of the population accounted for by adolescents and young adults are available for 2015 from the Global Burden of Disease Study (GBD) (Global Health Data Exchange, 2018). Figure 2.1 shows 10- to 24-year-olds as a proportion of the total population for each of the 19 countries in 2015. In that year, the estimate for the UK was 18.3%, making it the fifth highest proportion of the 19 (with the smallest proportion being Japan – 13.5% – and the largest proportion being New Zealand – 20.8%).

Figure 2.1: Comparison of 10- to 24-year-olds as a proportion of the whole population, 2015
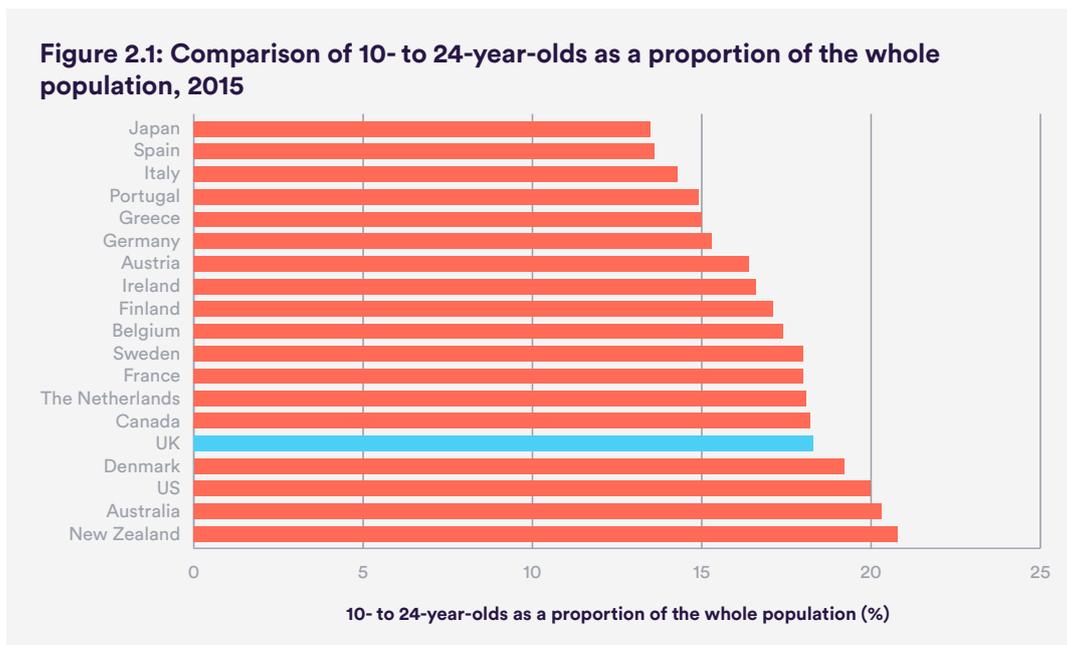
Source: Global Burden of Disease study (accessed January 2019).

Adolescent and young adult mortality

Adolescence is generally a healthy life stage. However, mortality rates decrease after early childhood and then rise again through the teenage and young adult years. Deaths at this stage in life are often from preventable causes. Figure 2.2 shows the age-specific mortality rate (the death rate specific to a certain age

group) for adolescents aged 10–19 in 2015 in the UK and the 18 comparator countries. The average across all 19 countries was 18.8 deaths per 100,000 adolescents. The UK had a relatively low mortality rate of 15.9, the fifth lowest out of the 19 countries.

Figure 2.2: Comparison of adolescent all-cause mortality rate per 100,000 adolescents, 10–19 year old population, 2015

Adolescent (10- to 19-year-olds) mortality rate per 100,000 10- to 19-year-old population
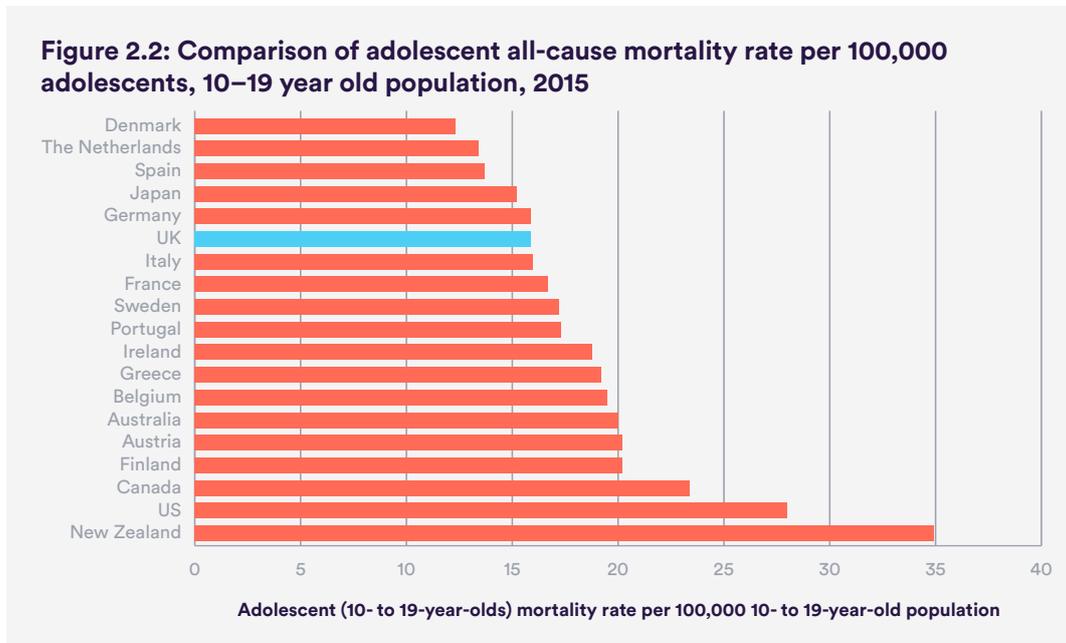
Source: Global Health Observatory data repository (accessed January 2019).

Children and young people's mortality has been falling over time. Between 2005 and 2015, the crude death rate for children and young people in the EU28 countries, for example, followed a significant downward trend. It declined by 27% overall, from 46 to 34 deaths per 100,000 children aged 0–14, and from 52 to 38 deaths per 100,000 young people aged 15–29 (Eurostat, 2018).

The overall mortality rate for young people in the UK has also followed this trend – until recently. Figure 2.3 shows the trends from 1996 to 2016. Overall, mortality for 10- to 14-year-olds fell across this period, from 16.2 to 8.7 per 100,000 population of this age. Over the same period, the rate for 15- to 19-year-olds fell from 44.9 to 23.5 per 100,000 population of this age and for 20- to 24-year-olds it fell from 61.5 to 37.5 per 100,000 population of this age. However, as the chart shows, the reduction in mortality rates stalled around 2012, and there were even slight rises in mortality for 20- to 24-year-olds between 2013 and 2016. This mirrors the reduction (and reversal) of improvements in infant mortality in the UK over the same period (Office for

National Statistics, 2018d), and should set alarm bells ringing about the future of children and young people's health in the UK.

Figure 2.3: Comparison of mortality rates for young people aged 10–24 per 100,000 age-specific population, UK, 1996–2016
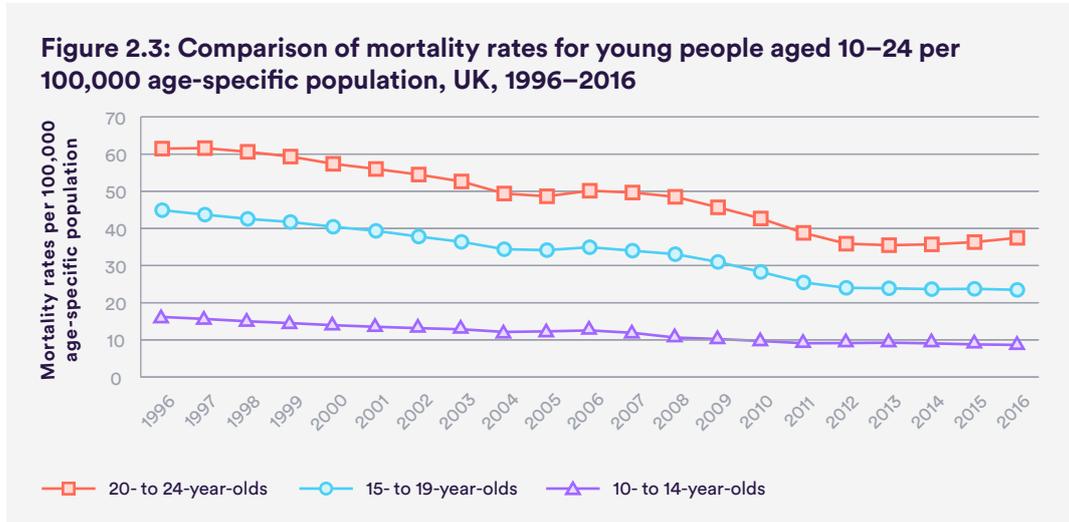
Source: Global Burden of Disease study, 2016 (accessed January 2019).

Overall burden of disease in adolescence and early adulthood

'Burden of disease' is a concept that the Harvard School of Public Health, the World Bank and the World Health Organization developed in the 1990s to describe death and loss of health due to diseases, injuries and risk factors. It is a way of summarising the overall impact of various diseases on human life. The overall burden of disease is the years lost to disability and early death, from all illnesses. This is expressed in 'disability-adjusted life years' (DALYs) per 1,000 or 100,000 population (World Health Organization, 2014b). One DALY represents the loss of the equivalent of one year of full health. If the whole population lives to the standard life expectancy in perfect health, then the DALY would be zero. See the box and graphic on the next page for further explanation.

Disability-adjusted life years

The disability-adjusted life year is a metric that estimates how much disease affects ('burdens') the life of the population. It combines in one consistent summary measure the burden from (a) mortality – years lost because of death due to disease and (b) morbidity – lives lived adversely affected by disease. Time lost to premature death is compared to a standard life expectancy (usually 80 years for men and 82 years for women). DALYs measure the difference between a current situation and an ideal situation where everyone lives up to the age of the standard life expectancy, and in perfect health.

Years lost to disability relies on 'disability weights', obtained by surveying people on their subjective view of how much a disease affects individuals.

In this report we use DALYs to measure the burden of disease for the population. This is usually done by giving the DALY rate for 100,000 healthy life years. The whole population of young people age 10–24 has millions of healthy life years ahead of them, so this is a summary measure that helps us to visualise how big the impact is compared with perfect health.

Disability-adjusted life years
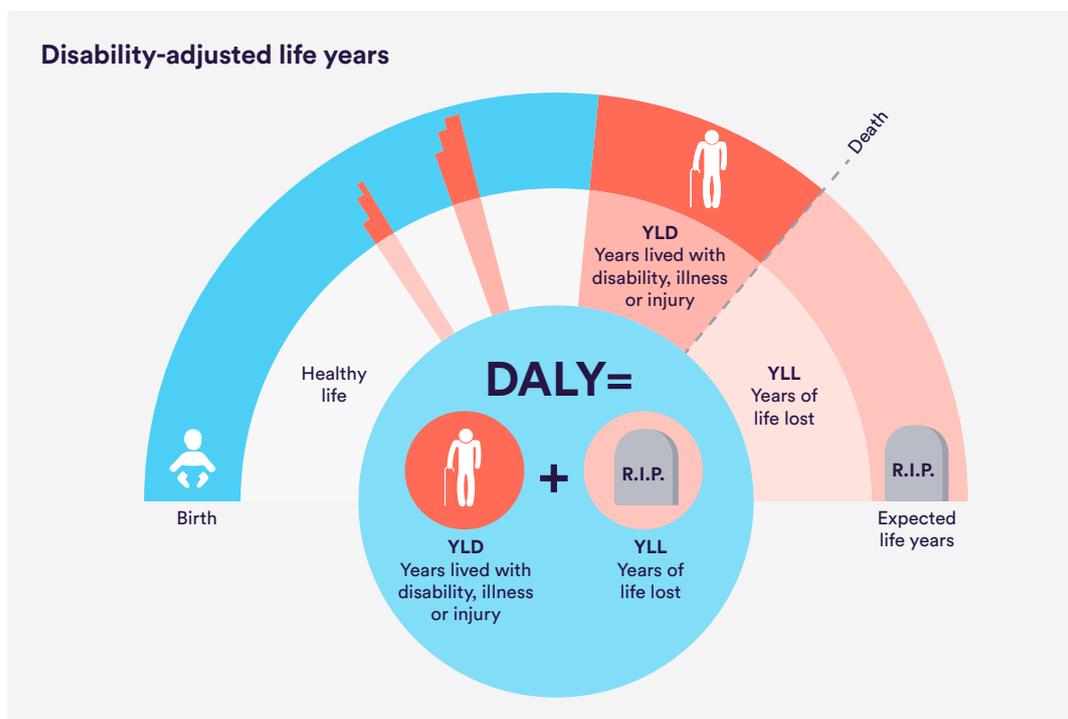
Source: Public Health England (2015). Reproduced under Open Government Licence.

DALYs can be used to demonstrate the impact of one disease – such as diabetes – or bundles of diseases. It can be estimated for the whole population, or just for a subset. Most of the DALYs borne by children and young people are caused by early death. As children leave childhood and move into adulthood, more DALYs start to be caused by living with ill-health and disability.

For the 19 countries featuring in our comparisons, the average DALYs lost to any cause per 100,000 healthy life years in 2016 were 5,917 for 10- to 14-year-olds, 9,868 for 15- to 19-year-olds and 12,529 for 20- to 24-year-olds. These were lower than figures for infants and for older adults (Global Health Data Exchange, 2018). Figure 2.4 shows that the UK had a relatively high rate of DALYs in 2016, with results for all three age groups falling in the worse half of the 19 countries. The poorest-performing age group was 10- to 14-year-olds, for whom the UK ranked 16th out of 19, with rates for 15- to 19-year-olds at 15th position and rates for 20- to 24-year-olds at 14th position.

It is not surprising that the all-cause DALY rate for young people aged 10–24 in the UK over the past decade mirrors the mortality rate trend because it is based on mortality and disability. Similarly, the initial improvements seen in all-cause DALY rates in recent decades have also halted since 2012.

Figure 2.4: Comparison of all-cause disability-adjusted life years (DALYs) for young people aged 10–24 per 100,000 healthy life years, 2016
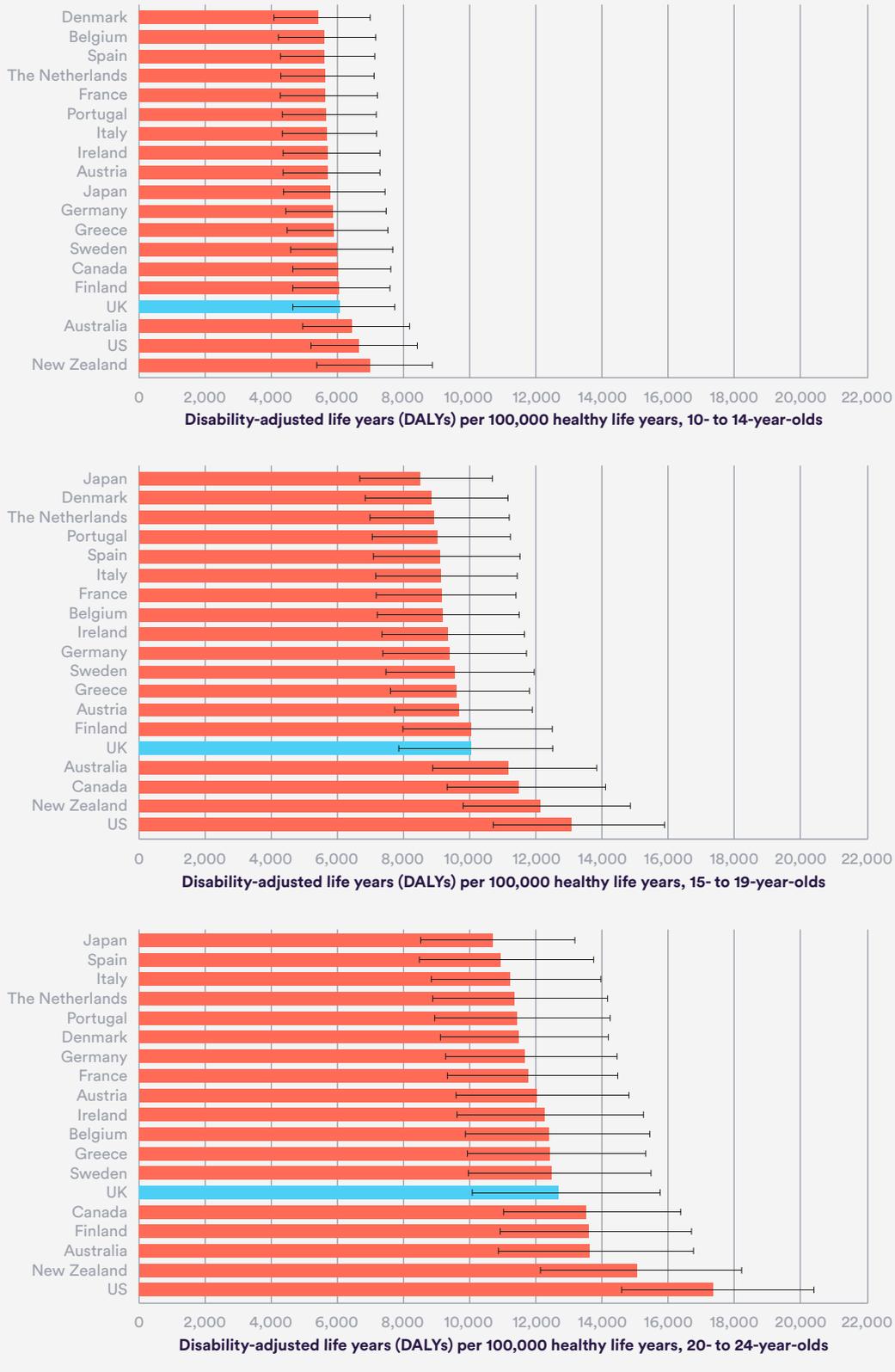
Disability-adjusted life years (DALYs) per 100,000 healthy life years, 10- to 14-year-olds

Disability-adjusted life years (DALYs) per 100,000 healthy life years, 15- to 19-year-olds

Disability-adjusted life years (DALYs) per 100,000 healthy life years, 20- to 24-year-olds

Source: Global Burden of Disease study, 2016 (accessed January 2019). 95% confidence intervals displayed.

Young people living with longstanding illness or health problems

The European Union Statistics on Income and Living Conditions (EU-SILC) allow comparisons of the proportions of young people aged 16–24 who are living with a longstanding chronic illness or health problem (European Commission, 2013). This indicator is a measure of chronic morbidity and is measured by asking if the young person has experienced any illness or physical/mental health problem for a period of six months or more. Comparable data are not available for the Anglosphere countries.

In the UK, nearly one in five young people were estimated to be living with a longstanding condition or health problem in 2016. In comparison with 13 other EU countries, the UK had a relatively high rate of 18.5%, coming 12th out of the 14 European countries (see Figure 2.5). In addition, the proportion of young people aged 16–24 living with a longstanding illness in England has increased over the past decade, from 13.5% in 2008 to 18.5% in 2016 (Office for National Statistics, 2017).

Figure 2.5: Comparison of 16- to 24-year-olds with a longstanding illness or health problem, 2016

Percentage of 16- to 24-year olds with a longstanding illness or health problem (%)
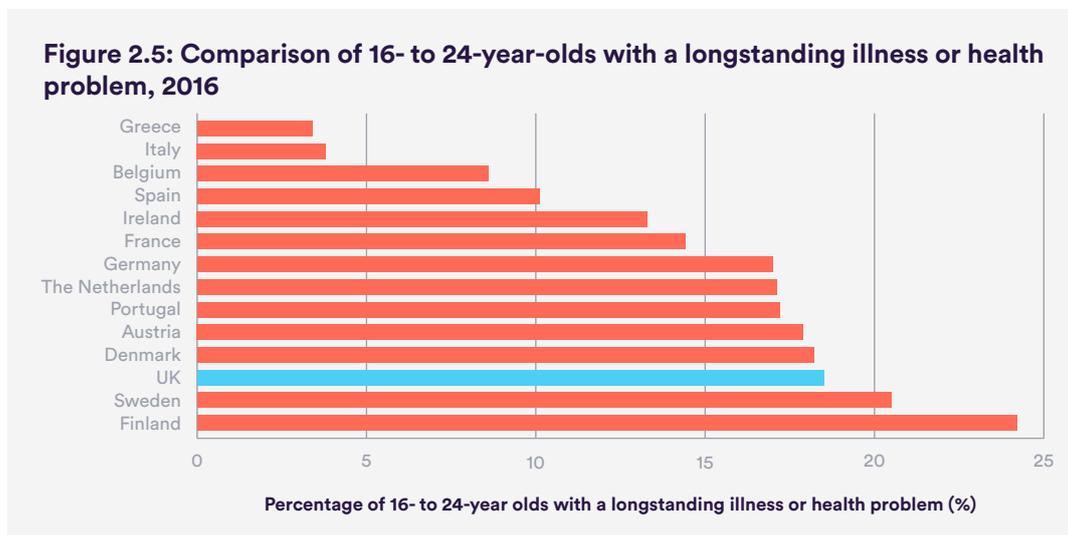
Source: Eurostat (accessed July 2018).
Note: Chronic morbidity: the concept is operationalized by a question asking if the respondent suffers from any longstanding (of a duration of at least six months) illness or health problem.

3 Health-related behaviours

Headline findings

- Among the 19 countries that we analysed, the UK has the third highest birth rate to women aged 15–19, at 14.4 per 1,000 women of that age. Only New Zealand and the US have higher rates.

- There has been a decline in adolescent birth rates since 2007 and the rate of decline has been greater in the UK than in some other similar countries.

- England and Wales have two of the four lowest proportions of boys and girls participating in two or more hours of vigorous exercise a week. Rates for Scotland were better.

- In terms of smoking among young adults aged 18–24, the UK falls in the middle of the comparator countries, having the eighth-lowest percentage of daily smokers.

- The rates of 15-year-olds in England, Wales and Scotland who drink alcohol once a week fall in the middle when compared with similar high-income countries. Like other countries, the UK has seen a fall in teenage drinking. However, rates for girls in the UK compare slightly worse than for boys internationally.

- The proportions of 15-year-olds using cannabis in the past 30 days are relatively low for England and Wales, but higher for Scotland.

Adolescence and early adulthood are a time when many lifelong behaviours are set in place (Harkness and others, 2016). Behaviours in adolescence and early adulthood that have an impact on health – such as a lack of exercise, smoking, alcohol consumption and substance misuse – can be part of the cause of conditions such as cancer, heart disease, type 2 diabetes and even mental health problems later in life. This chapter therefore looks at how the

UK compares internationally with similar high-income countries in terms of health-related behaviours in adolescence and early adulthood.

Adolescent birth rate

Even though giving birth during adolescence can be a positive experience, evidence shows that it can be associated with a wide range of subsequent poor health outcomes for both mother and child, such as increased morbidity and mortality, and adverse social outcomes (Ermisch, 2003; Harden and others, 2009). Not all pregnancies result in a birth. For example, in England, 45% of conceptions among women younger than 20 years of age end in an abortion (Office for National Statistics, 2018a). However, abortion remains illegal in some countries or is only allowed when there is a risk to the mother's health, including in the Republic of Ireland and Northern Ireland. This makes the collection of official statistics difficult. For this reason, we have focused on the adolescent birth rate for international comparisons.

Figure 3.1 shows a comparison of birth rates to young women aged 15–19 per 1,000 women of that age in 2016. These data are from the World Health Organization Global Health Data Repository. In this comparison, the UK had the third-highest birth rate, at 14.4 per 1,000 women aged 15–19. Only New Zealand and the US had higher rates.

Figure 3.1: Comparison of birth rates to young women aged 15–19 per 1,000 women of that age, 2016
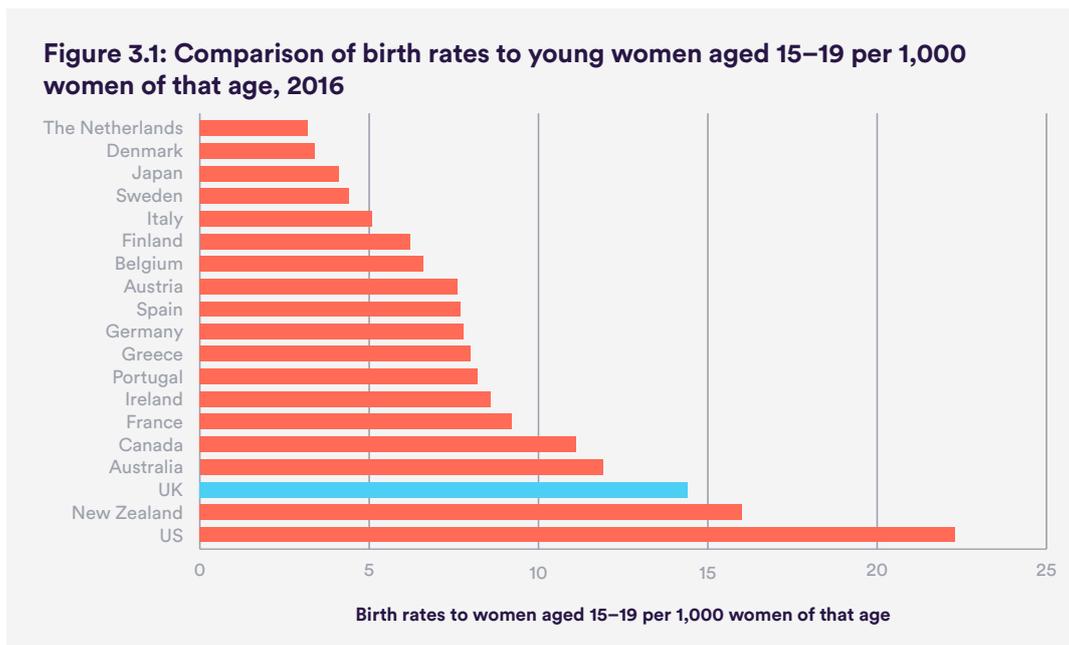
Source: Global Health Observatory Data (accessed January 2019).

It is also important to note that the under-18 conception rates in England and Wales and in Scotland follow a socioeconomic gradient, with those living in the poorest areas having double the rate of teenage pregnancy compared with those living in the richest areas (Office for National Statistics, 2018a; 2018c).

Figure 3.2 shows a comparison of trends in adolescent birth rates to young women aged 15–19 between 1980 and 2016 for a selection of high-income countries – including the Netherlands, which had the lowest rate in our international comparison, and the US, which had the highest rate. In the UK, the adolescent birth rate halved from 28.8 per 1,000 women aged 15–19 in 1980 to 13.5 per 1,000 women aged 15–19 in 2016. Although currently the UK has one of the highest adolescent birth rates among the countries analysed, the more recent rate of decline in adolescent birth rates since 2007 in the UK is greater than in countries such as Germany and the Netherlands, which have lower current adolescent birth rates.

Figure 3.2: Comparison of trends in birth rates to young women aged 15–19 per 1,000 women of that age, 1980–2016, selected countries
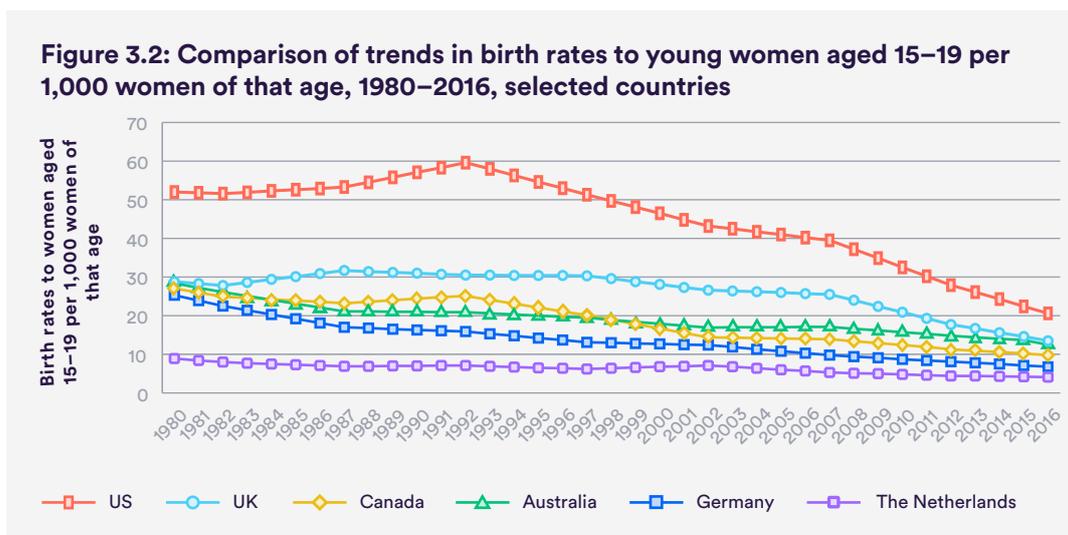
Source: United Nations Population Division, World Population Prospects.

The UK government's Teenage Pregnancy Strategy for England, launched in 1999, was an example of a nationally led, locally implemented evidence-based strategy (Social Exclusion Unit, 1999). It was financed over a long period of time and associated with a significant reduction (51%) in pregnancy rates among women under 18 years of age (Hadley and others, 2016). Teenage pregnancy is complex and the factors that lead to a young person becoming pregnant are often multifactorial. It was key to the strategy's success that it

addressed this complexity. Some features that contributed towards its success included the development of an evidence-based approach, regular review of the progress of the strategy and embedding the strategy within wider government programmes (Hadley and others, 2016).

Despite the recent decline in adolescent birth rates, the UK still has one of the highest adolescent birth rates when compared with similar high-income countries and inequalities persist. The lessons learnt from the Teenage Pregnancy Strategy are still very relevant today and additional action is still required to reduce unwanted teenage pregnancy rates among vulnerable groups of young people in the UK.
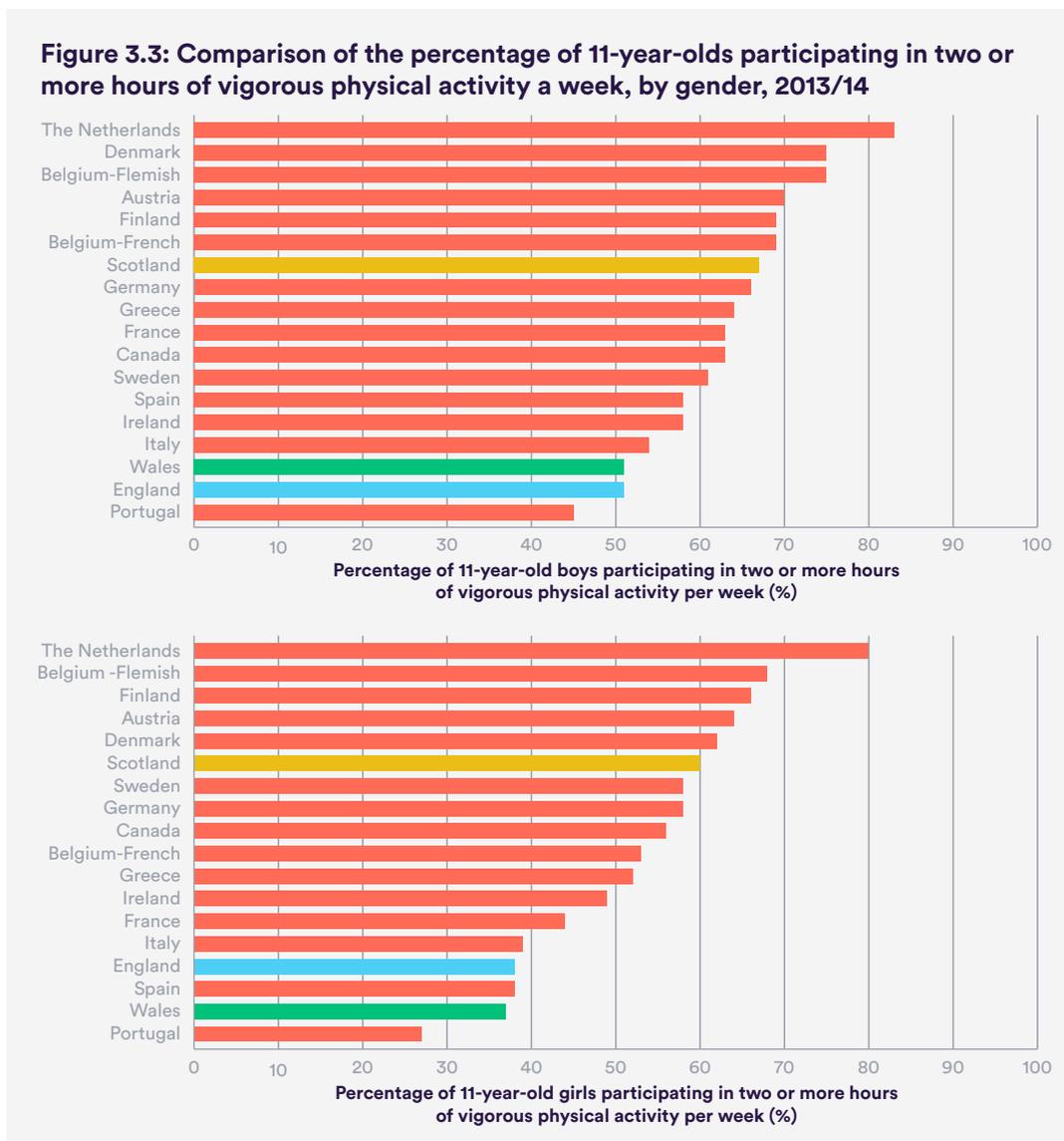
Exercise

Young people's physical activity levels are critical to their overall health (Department of Health, 2011). Lack of exercise in adolescence is linked to several chronic conditions in later life, such as obesity, type 2 diabetes, hypertension, heart disease and even low mood (Booth and others, 2012). Adolescence and early adulthood appear to be a stage in life where physical activity levels drop, particularly for young women (NHS Digital, 2016).

To make international comparisons of exercise levels in adolescence, we used the proportion of 11-year-olds participating in two or more hours of vigorous physical activity a week as an indicator. We obtained the relevant data from the Health Behaviour in School-aged Children (HBSC) study (Inchley and others, 2016). We excluded Australia, Japan, New Zealand and the US from our analysis due to a lack of comparable data. In the analysis, data for the UK are presented separately for England, Scotland and Wales.

Figure 3.3 shows that the percentage of 11-year-old boys who participated in two or more hours of vigorous physical activity a week in 2013/14 was 51% in England and Wales, and 67% in Scotland. In terms of international comparisons, Wales and England did poorly, having the second- and third-lowest percentages (respectively) of 11-year-olds participating in two or more hours of vigorous exercise a week. Rates for Scotland were better, being ranked 12th highest out of the 17 countries included in the comparison.

Patterns were similar for girls. Figure 3.3 shows that the percentage of 11-year-old girls who participated in two or more hours of vigorous physical activity a week was 38% in England, 37% in Wales and 60% in Scotland. As for the boys, Wales and England ranked poorly internationally, having the second- and fourth-lowest proportions (respectively) of 11-year-old girls achieving this level of weekly activity. Again, rates for Scotland were better, falling in the middle of the range with the sixth-highest proportion.

Across all countries included in the comparison, 11-year-old boys had higher proportions achieving vigorous physical activity in a week compared with 11-year-old girls.

Figure 3.3: Comparison of the percentage of 11-year-olds participating in two or more hours of vigorous physical activity a week, by gender, 2013/14

Source: Health Behaviour in school aged children: Growing up unequal 2013–2014 study.
Note: The 'Health Behaviour in School Aged Children' study collects data from French-speaking areas and Flemish-speaking areas in Belgium separately.

For longer-term time trends in young people's exercise achievement, reliable data are available from the Health Survey for England. There was a decrease in the proportion of boys, particularly those aged 13–15, meeting physical activity recommendations between 2008 and 2015, falling from 14% in 2008 to 9% in 2015 (NHS Digital, 2017a). There was no statistically significant change in the proportion of girls meeting physical activity requirements over the same period (NHS Digital, 2017a).

Age-appropriate interventions, different from those used for younger children, are required to encourage adolescents to participate in more exercise. There is an argument for policy-makers to prioritise improving urban environments to include more green spaces (Mytton and others, 2012) and make neighbourhoods safer, to encourage more physical activity among young people (Esteban-Cornejo and others, 2016). Encouraging physical activity in schools and colleges is also important.

Smoking, alcohol and cannabis use

Smoking

Smoking is the primary cause of preventable illness and premature death, and causes one in six of all deaths in the UK (Gavin, 2004). Two out of three smokers start by the age of 18, making adolescence and early adulthood a key stage to target with smoking prevention and cessation interventions (Health and Social Care Information Centre, 2015).

For our international comparison, we used the percentage of daily smokers aged 18–24 as an indicator, for two reasons: first, because regular, daily smoking has a larger impact on later health when compared with experimental smoking in adolescence; and second, because comparable data for this age range are available for all our countries of interest. For this indicator we obtained the European data from the Eurostat database and comparable data for Australia, Canada, New Zealand and the US from their respective national databases.

Figure 3.4 shows a comparison of the percentage of 18- to 24-year-olds who smoke daily, drawing on the most recent data (varied years). The UK fell in the

middle of the group, having the eighth-lowest percentage of daily smokers, at 15.3%.

Figure 3.4: Comparison of the percentage of 18- to 24-year-olds who smoke cigarettes daily, varied years
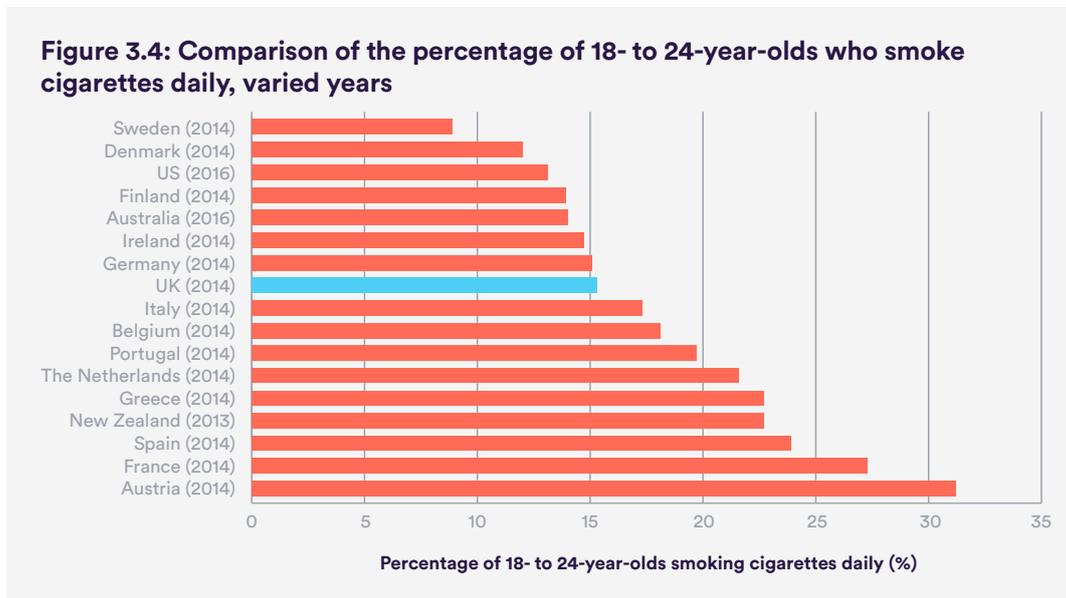
Source: Eurostat, 2014 (Europe); Stats NZ, 2017 (New Zealand); Centers for Disease Control and Prevention, 2018 (US); Tobacco in Australia: Facts and issues, 2018 (Australia) Europe statistics; New Zealand statistics; US statistics; and Australia statistics.

There is a lack of robust, comparable international trend data for daily smoking among young people. However, data from the Health Survey for England show that the trend in the proportion of young people aged 16–24 who smoke daily in England was generally improving between 2003 and 2015 (NHS Digital, 2017a).

The introduction of a smoking ban in public places, a ban on the marketing of tobacco products and the raising of taxes on tobacco are all likely to have had a significant impact on this decline in youth smoking (Action on Smoking and Health, 2018). However, there is no room for complacency: the fact that 15% of 18- to 24-year-olds continue to smoke daily remains a serious concern.

Furthermore, despite a falling trend in youth smoking, health inequalities related to regular smoking among young people continue to exist. There is evidence in England from the 2014 What About YOUth? Survey that regular smoking among 15-year-olds follows a socioeconomic gradient, with those

living in the poorest areas being twice as likely to smoke regularly compared with those living in the richest areas (NHS Digital, 2014).

Alcohol

To compare alcohol consumption between countries, we have used the proportion of 15-year-olds who drink alcohol at least once a week as an indicator. We obtained the relevant data from the Health Behaviour in School-aged Children (HBSC) study (Inchley and others, 2016). There are no directly comparable data for Australia, New Zealand and the US. Aggregate data for the UK are not available and therefore data for England, Wales and Scotland are presented separately.

Figure 3.5 shows a comparison of the percentage of 15-year-olds who reported drinking alcohol at least once a week, by gender, in 2013/14. The percentage of 15-year-old boys who drank alcohol at least once a week was 12% in England, 14% in Wales and 16% in Scotland. The respective percentages for 15-year-old girls were 10% in England, 12% in Wales and 11% in Scotland. Across genders, England, Wales and Scotland were in the middle of the pack when compared with the similar high-income countries in our analysis. However, the girls compared slightly worse than the boys internationally: girls in Wales had the fifth-highest percentage of 15-year-olds who drank alcohol at least once a week.

Figure 3.5: Comparison of the percentage of 15-year-olds who drink alcohol at least once a week, by gender, 2013/14

Percentage of 15-year-old girls who drink alcohol at least once a week (%)

Percentage of 15-year-old boys who drink alcohol at least once a week (%)
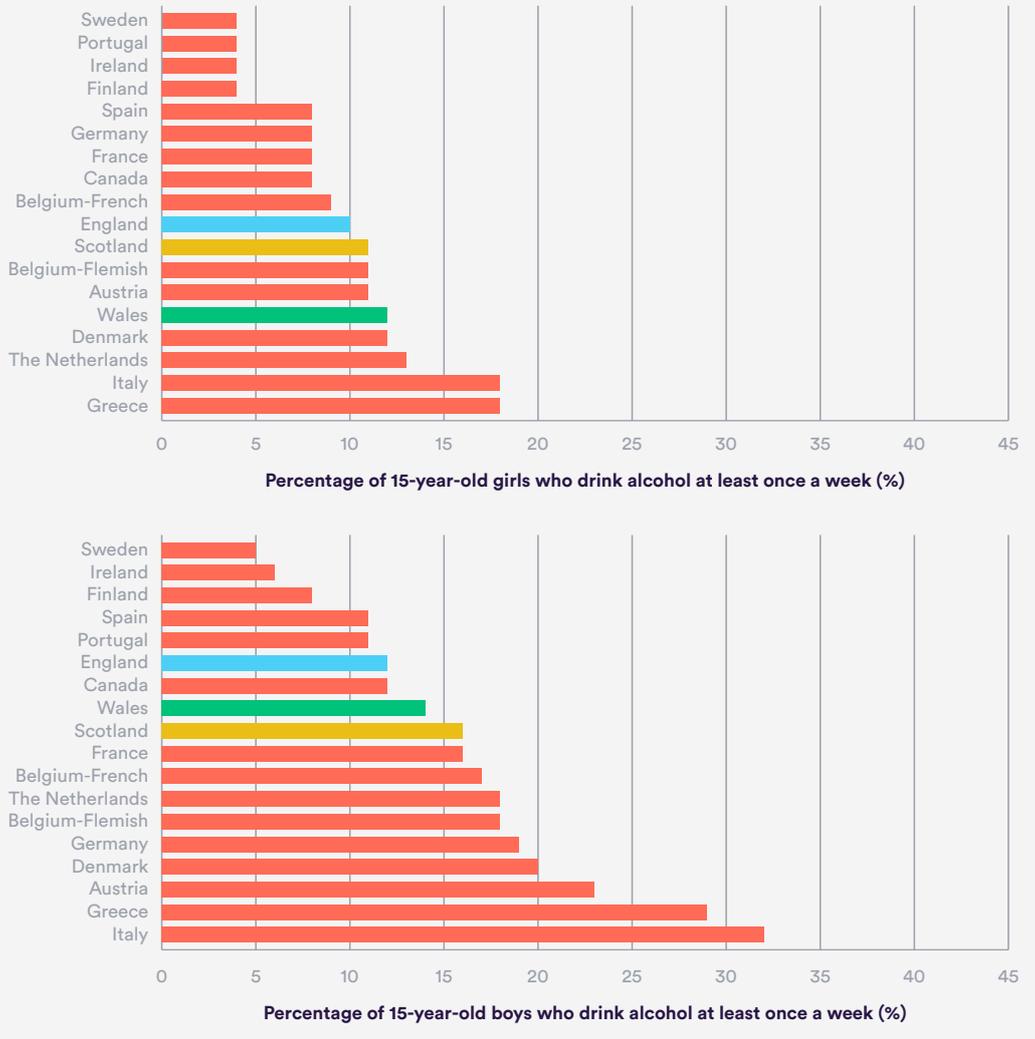
Source: Health Behaviour in school aged children: Growing up unequal 2013–2014 study. The 'Health behaviour in school aged children' study collects data from French-speaking areas and Flemish-speaking areas in Belgium separately.

There are differences between drinking regularly and being drunk. Being drunk is a key indicator of alcohol misuse. In the 2015 European School Survey Project on Alcohol and Other Drugs (ESPAD), involving 36 European countries, the UK compared poorly in terms of rates of being drunk when underage (Hibell and others, 2012). Teenage girls in the UK aged 15–16 were in the top three countries where girls were most likely to have been drunk in the previous month, and 28% of girls and 24% of boys in the UK said they were drunk in the previous week (Hibell and others, 2012). The averages

across countries in this survey were 15% for girls and 18% for boys (Hibell and others, 2012).

Similar patterns were seen among young people aged 16–24 in the 2016 Health Survey for England. Although they drank fewer times during the week than most older age groups, when they did drink, a significant proportion engaged in heavier episodic or 'binge' drinking. The most notable example of this was among young women, with the highest proportion of female binge drinkers being in the 16–24 age bracket (NHS Digital, 2017a). Binge drinking was defined as consumption exceeding eight units for men and six units for women on their heaviest drinking day.

In terms of long-term trends, the Smoking, Drinking and Drug Use Among Young People in England survey (SDDU) has shown that there was a decline in underage drinking in England between 2003 and 2014 (NHS Digital, 2016), which was also reflected in the results for the older 16–24 age group in the recent Health Survey for England (NHS Digital, 2017a). Although directly comparable trend data are not available, we know from other national surveys that the same pattern is being seen in mainland Europe and the US (Inchley and others, 2016).

A variety of factors are thought to have contributed towards this decline in youth drinking. Wider use of identity checking (such as the Challenge 21 and Challenge 25 roll-outs) is likely to have contributed a modest amount to the downward trend, particularly for underage drinking. Other factors include national long-term responses such as stricter licensing and legislation, campaigning and raising awareness (Foster, 2016).

Overall, despite the downward trend in youth alcohol consumption, and average levels of daily drinking across both genders, it is important to note that the UK is still performing relatively poorly in terms of underage drinking and the proportions of young people who are engaging in heavy, episodic binge drinking. Binge drinking can affect memory and mental health later in life, but can commonly lead to antisocial, aggressive and violent behaviour as well (Jennison, 2004; Townshend and Duka, 2005). Investment in health education and early intervention for those showing the start of problems with alcohol use remain a critical part of health promotion for adolescents.

Cannabis

Heavy cannabis use in adolescence and early adulthood has been linked to psychosis in adulthood (Arseneault and others, 2002). Other longer-term consequences of adolescent cannabis use include lower educational attainment, lower income in adult life and increased anxiety (Green and others, 2017).

To compare cannabis use in adolescence, we have used the percentage of 15-year-olds who have used cannabis in the past 30 days as an indicator. We obtained the relevant data from the Health Behaviour in School-aged Children (HBSC) study. We excluded Australia, Greece, Japan, New Zealand and the US due to a lack of comparable data.

Figure 3.6 shows that the percentage of 15-year-old boys who had used cannabis in the past 30 days in 2013/14 was 9% in England, 7% in Wales and 13% in Scotland. The respective percentages for 15-year-old girls were 8% in England and Wales and 7% in Scotland. Out of the 16 countries we have data for in our international comparison, for boys, Wales and England were in the lower half of the group (less cannabis use), being ranked fourth and seventh, respectively; Scotland did not compare so well. For girls, all three countries were among the middle of the 17 countries we have data for.
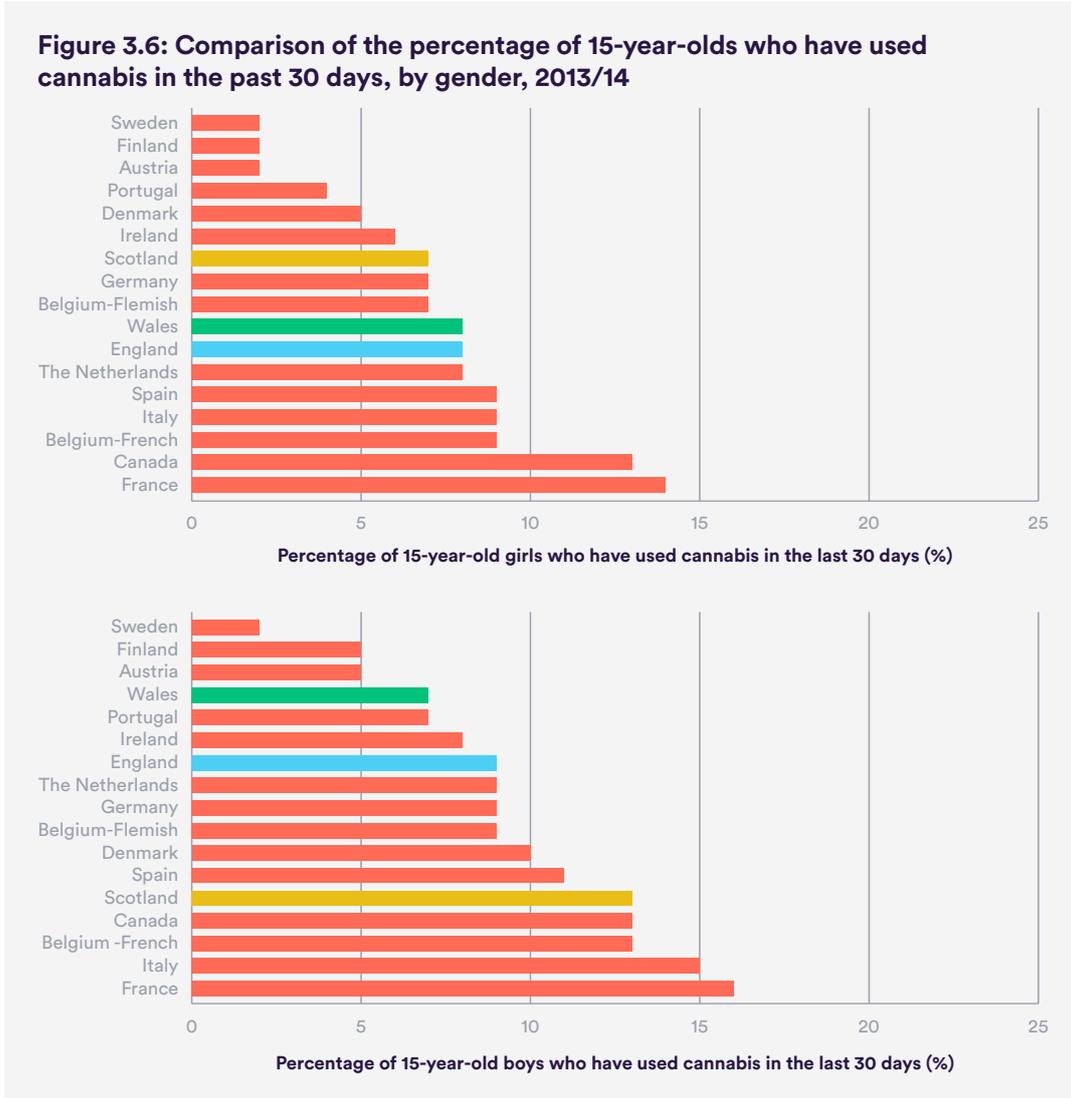
Figure 3.6: Comparison of the percentage of 15-year-olds who have used cannabis in the past 30 days, by gender, 2013/14

Percentage of 15-year-old girls who have used cannabis in the last 30 days (%)

Percentage of 15-year-old boys who have used cannabis in the last 30 days (%)

Source: Health Behaviour in school aged children: Growing up unequal 2013–2014 study.

Note: The 'Health Behaviour in School Aged Children' study collects data from French speaking areas and Flemish speaking areas in Belgium separately.

There is a lack of robust trend data for cannabis use among young people that can be used to make an international comparison. Changes in the constitution of the drug may also have complicated the picture. However, evidence from the Crime Survey for England shows that cannabis use among 16- to 24-year-olds is lower currently than a decade ago, but the trend has remained relatively flat since the 2009/10 survey year (Home Office, 2018). In 2016/17, 16.4% of young people aged 16–24 had used cannabis in the previous year, compared with 20.9% in the 2006/07 survey year (Home Office, 2018).

4 Social determinants of health

Headline findings

- Health is as much a function of living and working conditions as health care. As a result, social inequalities are strongly associated with health inequalities.

- Among the European countries analysed, the UK has the fourth-highest proportion of young people aged 15–19 who are experiencing severe material deprivation and the third-highest proportion of young people aged 20–24 who are experiencing this level of deprivation.

- The UK ranks poorly for the rate of 15- to 19-year-olds who are not in education, employment or training (NEET), with the 16th-highest NEET rate for this age group out of 18 similar countries.

- Although the absolute rate of young people who are NEET is higher for 20- to 24-year-olds than for 15- to 19-year-olds, the UK ranks a little better for this older age group, having the 10th-highest NEET rate compared with 16 other similar countries.

A range of different kinds of social experiences are linked to health throughout the lifespan. The World Health Organization defines the social determinants of health as 'the conditions in which people are born, grow, live, work and age' (World Health Organization, no date). These conditions can be divided into structural determinants (broad societal factors such as national wealth, income inequality, educational opportunities and other national infrastructures) and proximal determinants (determinants that flow from the structural, for example family factors, social support, neighbourhoods, the environment and school ethos). In fact it has been argued that health is as

much or more of a function of living and working conditions than a function of health care (McGovern and others, 2014; National Institute for Health and Care Excellence, 2012).

Young people experience huge physical, psychological and behavioural changes as they mature from children to adults, which allow unique opportunities for social determinants to affect health (Hagell and others, 2018). Measurement of the appropriate social determinants for this age group is not well developed and there are few internationally comparable indices. In this chapter we explore how severe material deprivation and rates of detachment from education, employment or training in adolescence and early adulthood in the UK compare internationally.

Severe material deprivation

The links between poverty and health in adolescence and early adulthood have been established for several health-related outcomes such as road traffic accidents, obesity, emergency hospital admissions, regular smoking, teenage pregnancy and mental health problems (Hagell and others, 2017).

To compare the level of poverty among young people aged 15–19 and 20–24, we have used a composite indicator of severe material deprivation. The relevant data were available only from the Eurostat database and therefore we excluded Australia, Canada, Japan, New Zealand and the US from the analysis.

Material deprivation indicators in the Eurostat database are based on the inability to afford a selection of nine specific items that are considered to be necessary or desirable, such as:

- not being able to afford one week's annual holiday away from home
- not being able to afford a meal with meat, chicken or fish (or a vegetarian equivalent) every second day
- not being able to face unexpected financial expenses.

The severe material deprivation rate is based on a single European threshold. It is an absolute measure of poverty that captures the differences in living

standards between countries. People who cannot afford to pay for four or more of the nine items are classed as severely materially deprived.

Figure 4.1 shows a comparison of the percentage of 15- to 19-year-olds who were severely materially deprived in 2013. It demonstrates that 11% of young people aged 15–19 in the UK experienced severe material deprivation in that year. The UK compared poorly among the European comparator group, having the joint fourth-highest proportion of 15- to 19-year-olds experiencing severe material deprivation.

Figure 4.1 also shows the percentage of 20- to 24-year-olds who experienced severe material deprivation in 2013. In this age range, 13.8% of young people in the UK were severely materially deprived. In comparison to the European comparator countries, the UK had the third-highest proportion of young people in this age group who were experiencing severe material deprivation.

Figure 4.1: Comparison of the percentage of 15- to 19-year-olds and 20- to 24-year-olds who are severely materially deprived, 2013

Percentage of 15- to 19-year-olds who are severely materially deprived

Percentage of 20- to 24-year-olds who are severely materially deprived
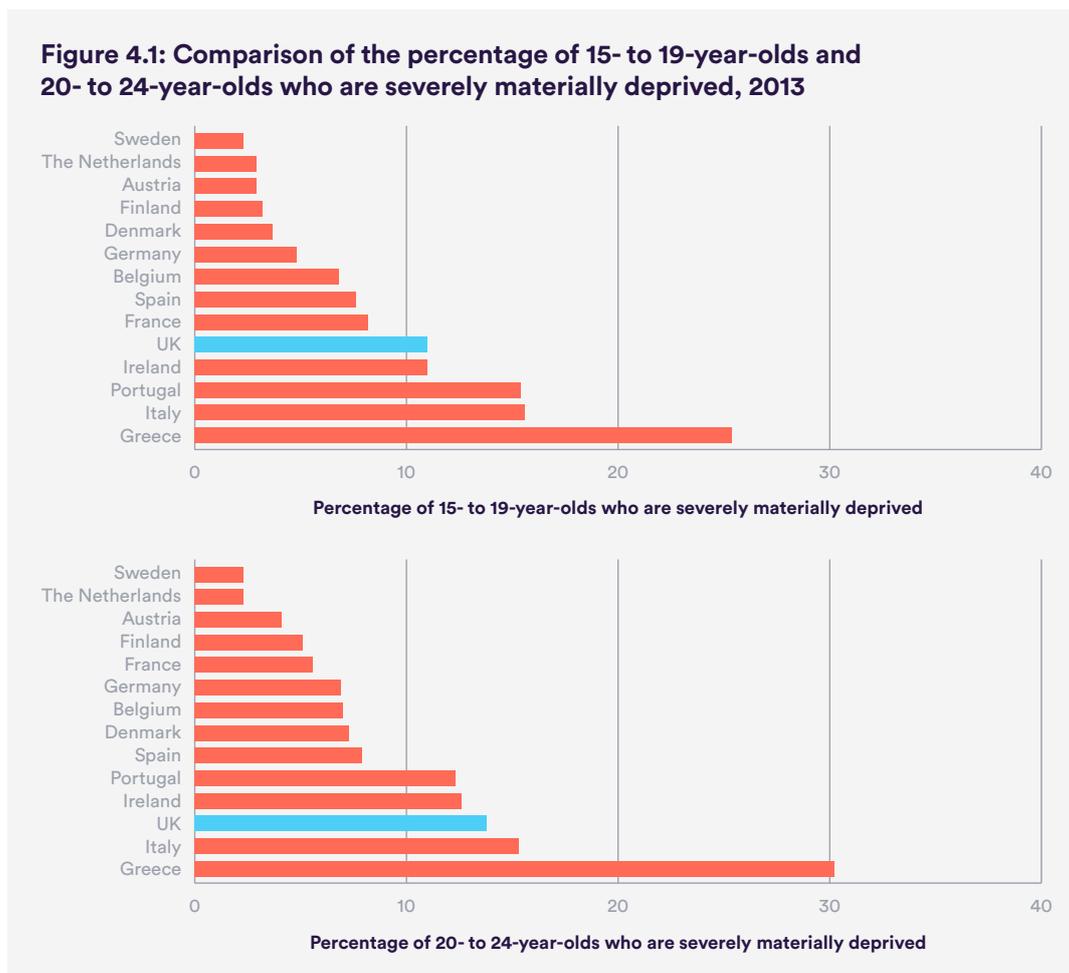
Source: Eurostat.

In terms of trends, the percentage of 15- to 19-year-olds in the UK who are severely materially deprived increased from 7% in 2005 to 11% in 2013. The percentage of 20- to 24-year-olds in the UK who are severely materially deprived also increased, from 8.8% in 2005 to 13.8% in 2013.

A study of 34 high-income countries has shown that, between 2002 and 2010, socioeconomic differences across multiple areas of adolescent mental and physical health increased (Elgar and others, 2015). In the UK – as in other countries – young people are disproportionately represented in families on a low income, with one in four young people aged 16–24 living in a household with less than 60% of the UK's median income in 2015 (Office for National Statistics, 2017). In addition, poverty among young people aged 14–24 is increasing at a greater rate when compared with poverty among younger children (New Policy Institute, 2015).

Not in education, employment or training (NEET)

The classification of young people who are not in education, employment or training (NEET) is often used as a marker of deprivation for adolescents and young adults. Young people who are NEET have a higher risk of mortality and hospitalisation and poorer mental health outcomes than those who do not fall into this category (Feng and others, 2018). These longer-term health effects of being NEET can then lead to wider costs both economically and socially.

To make international comparisons, we have used the percentage of 15- to 19-year-olds and 20- to 24-year-olds who were NEET in 2016. We excluded Japan from this analysis due to the unavailability of data and we excluded Ireland from the 20- to 24-year-old comparison due to unreliable data.

Figure 4.2 shows that in 2016 in the UK, 8.4% of 15- to 19-year-olds were NEET, as were 15% of 20- to 24-year-olds. The UK ranked poorly for the younger age group among the 18 countries analysed, having the 16th-highest NEET rate for 15- to 19-year-olds. Although the UK's NEET rate was higher for 20- to 24-year-olds than for 15- to 19-year-olds, it ranked a little better for this age group, having the 10th-highest NEET rate for those aged 20–24.

Figure 4.2: Comparison of the percentage of 15- to 19-year-olds and 20- to 24-year-olds not in education, employment or training (NEET), 2016
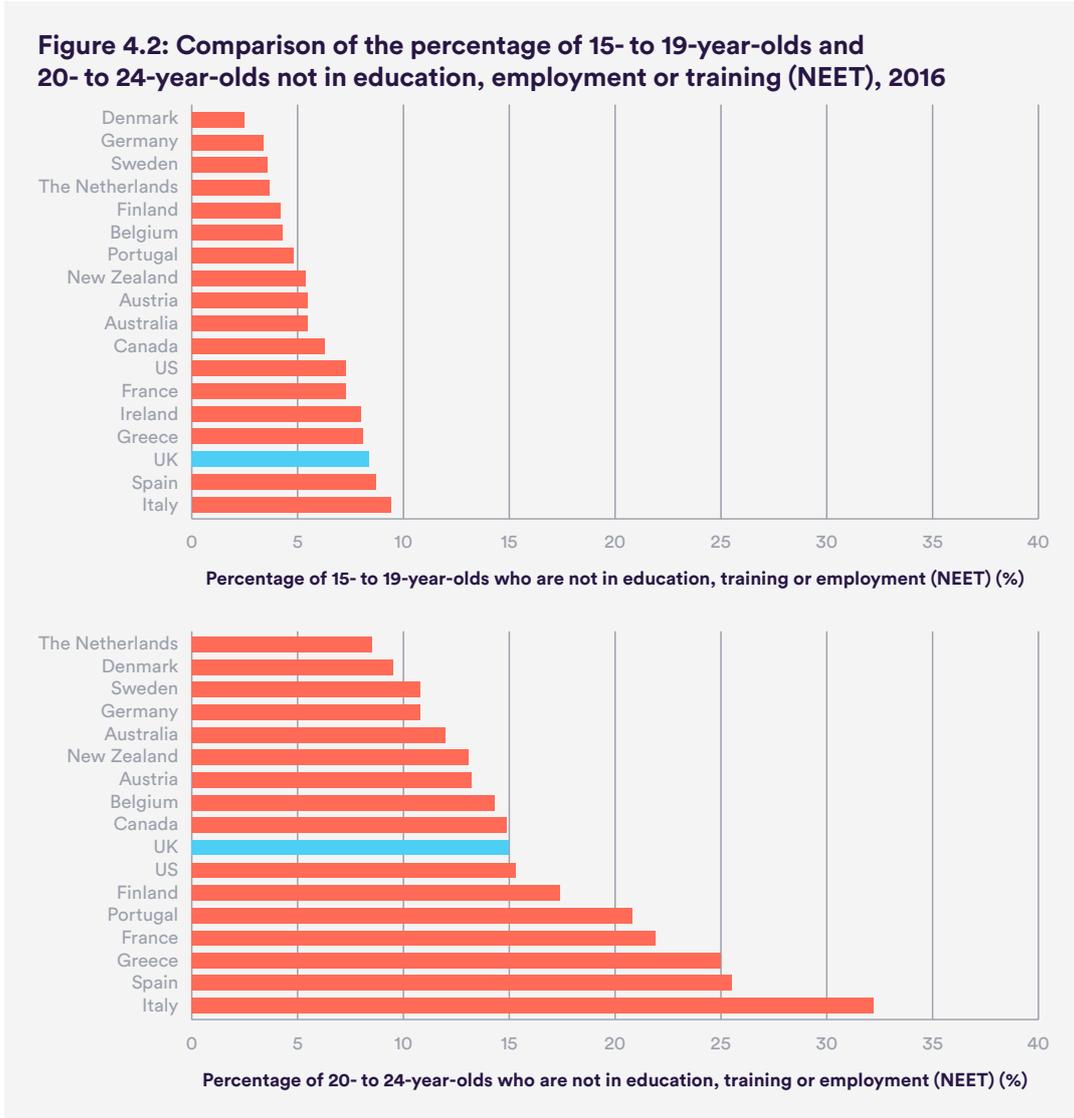
Source: OECD database 2016.

It is difficult to find robust NEET trend data to make international comparisons. In the UK, official data have shown the percentage of 16- to 18-year-olds who are NEET slowly decreasing from 2009, standing at 6.3% in 2017 (Department for Education, 2017). The UK data are often presented for this 16–18 age group in line with the point at which young people traditionally made the transition out of education and into employment or further and higher education. This transition point has been a peculiarly British one, not reflected in the education system of other similar countries. However, since 2017, young people have been required to stay in some kind of education or training until the age of 18.

5 Specific health outcomes

Headline findings

- The UK has the highest asthma mortality rate among young people aged 10–24 among the European countries included in our comparison, and the second highest among 15- to 19-year-olds.

- The UK has the highest proportion of 15- to 19-year-olds (8.1%) who are obese among the European countries, and the fifth-highest proportion of 15- to 19-year-olds who are obese among all 19 similar countries.

- The UK demonstrates a relatively high rate of disease burden from type 1 diabetes for young people aged 10–24.

- Relative to the comparator countries, the UK ranks in the middle for cancer mortality across genders and age groups.

- The UK has the third-lowest suicide rate for those aged 10–14 when compared with the other 18 countries, and the seventh-lowest and eighth-lowest suicide rates for those aged 15–19 and 20–24 respectively.

- The UK has a relatively low rate of road traffic injuries and deaths for adolescents and young adults compared with other similar countries. This is particularly so for those aged 10–14, where in our comparison the UK has the second-lowest rate after Japan.

Asthma

Asthma is one of the most common non-communicable diseases and it affects around 339 million people globally (Global Asthma Network, 2018). The definition of asthma has been the subject of controversy and has evolved over time, with the most widely accepted being 'a heterogeneous disease, usually characterised by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation' (Global Asthma Network, 2018). The majority of asthma symptoms begin in early childhood; however, there is evidence to suggest that it is young people aged 16–20 who are most likely to receive a new diagnosis of asthma (British Lung Foundation, 2012). Currently there is no cure for asthma; however, there are medications that can help to relieve and improve control of the symptoms.

As the definition of asthma may vary in different countries, measuring the prevalence of asthma among adolescents and young adults in an international context could be misleading. Admissions to hospital for asthma are often used as a proxy indicator for measuring improvements in the management of asthma care. However, the relationship between asthma prevalence, severity and admission rates for young people, particularly in high-income countries, is complex, and the factors that affect variations in admission rates are not fully understood (Global Asthma Network, 2018).
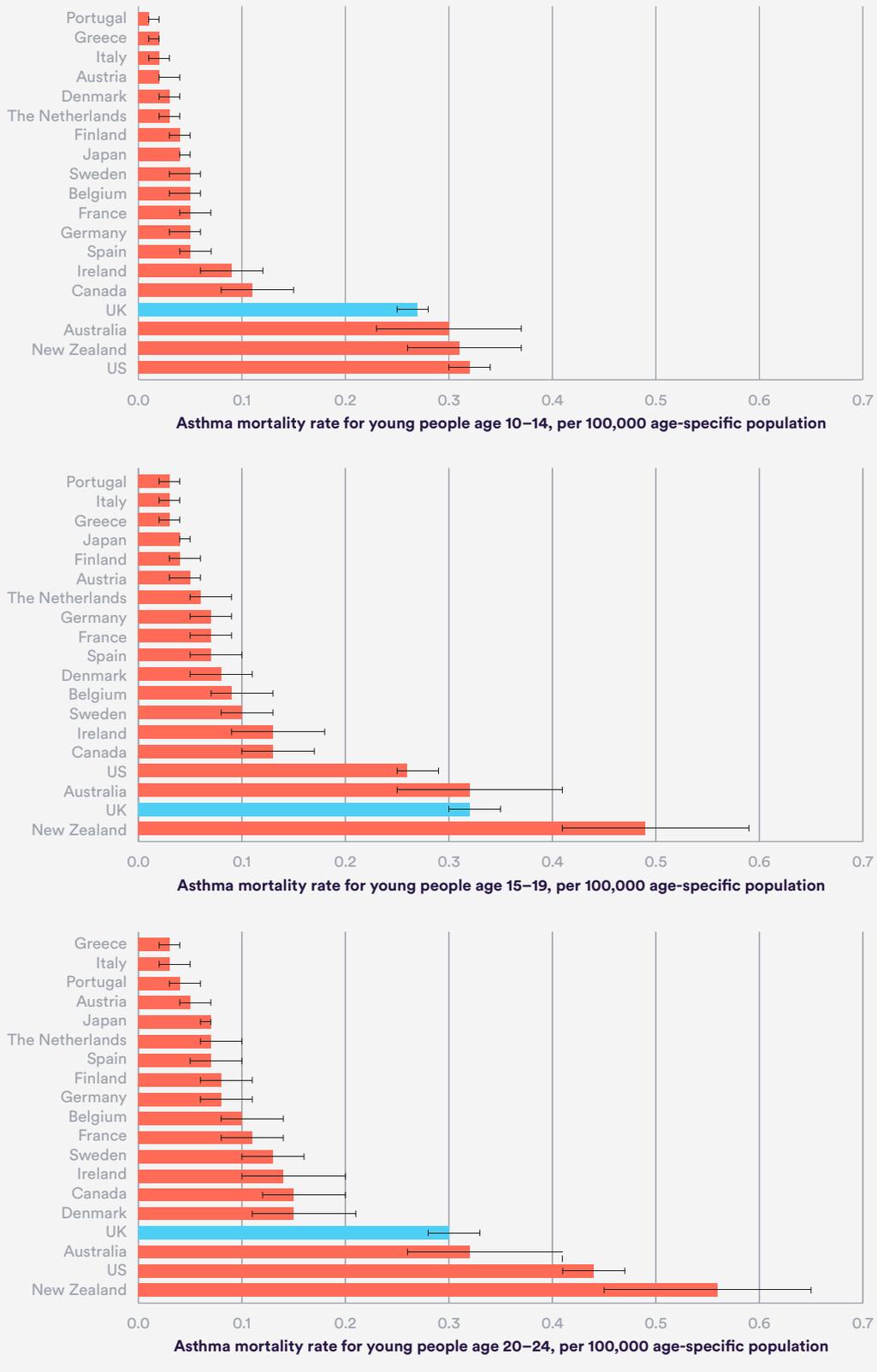
As a result, international comparisons of young people's health outcomes tend to use mortality from asthma as a more reliable indicator, because of the reduced likelihood of diagnostic confusion with other chronic respiratory conditions that occur in adults. We have used asthma mortality rates, obtained from the Global Burden of Disease Study (GBD), to make an international comparison. Asthma mortality rates for young people in the study have been obtained from details of death stated on death certificates.

Figure 5.1 shows the asthma mortality rates in the 10–14, 15–19 and 20–24 age groups as measured in the Global Burden of Disease Study 2016. In 2016, in comparison with the other European countries included in our analysis, the UK had the highest asthma mortality rate among young people across

all three age bands. It was also the second worst of the whole comparator group for 15- to 19-year-olds, with only New Zealand having a higher rate. For all age groups, the asthma mortality rate was approximately 0.3 per 100,000 age-specific population. In addition, the asthma mortality rate in the UK was approximately twice as high as that of the next-worst country in Europe in these comparisons, for all age groups.

There are various theories as to why the UK is performing so poorly in preventing asthma deaths; however, a lack of provision of basic care and a poor understanding of symptoms by both young people and health care providers are likely to be playing a part (Asthma UK, 2014; 2019).

Figure 5.1: Comparison of asthma mortality rates for young people aged 10–24 per 100,000 age-specific population, 2016

Asthma mortality rate for young people age 10–14, per 100,000 age-specific population

Asthma mortality rate for young people age 15–19, per 100,000 age-specific population

Asthma mortality rate for young people age 20–24, per 100,000 age-specific population

Source: Global Burden of Disease study, 2016 (accessed January 2019). 95% confidence intervals displayed.

In Figure 5.2, the time trends from 1998 to 2016 for the country in our analysis with the highest asthma mortality rates (New Zealand) and the country with some of the lowest asthma mortality rates (Greece) for 10- to 24-year-olds are compared with those for the UK. There was a decline in asthma mortality rates across all three age bands from 1998 to 2011, in all three countries; however, this decline appears to have plateaued since 2011 in the UK. This is particularly concerning because most deaths from asthma among young people are preventable with high-quality management (including the use of asthma management plans) and early intervention.

Figure 5.2: Comparison of asthma mortality trends among young people aged 10–24, New Zealand, UK and Greece, 1998–2016
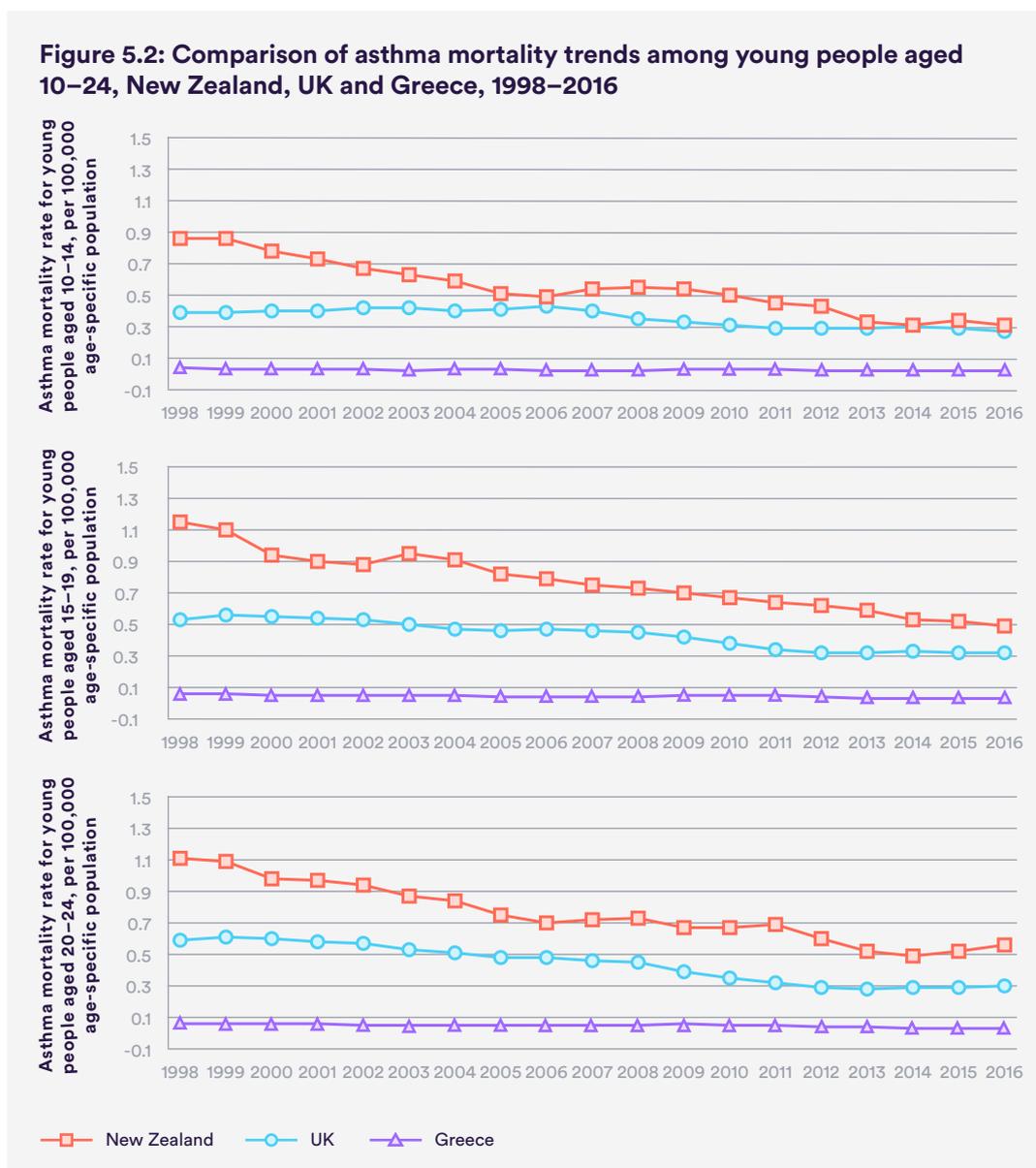
Source: Global Burden of Disease study, 2016 (accessed January 2019).

Emergency hospital admissions for young people with asthma clearly demonstrate a relationship with socioeconomic factors, with those from the most deprived areas of the UK being almost twice as likely to be admitted than those from the least deprived areas (Kossarova and others, 2017). Young people living in the most deprived areas are also more likely to smoke (Hagell and others, 2017) and be exposed to higher levels of air pollution, which may be contributing towards this socioeconomic gradient (Williams and others, 2018).
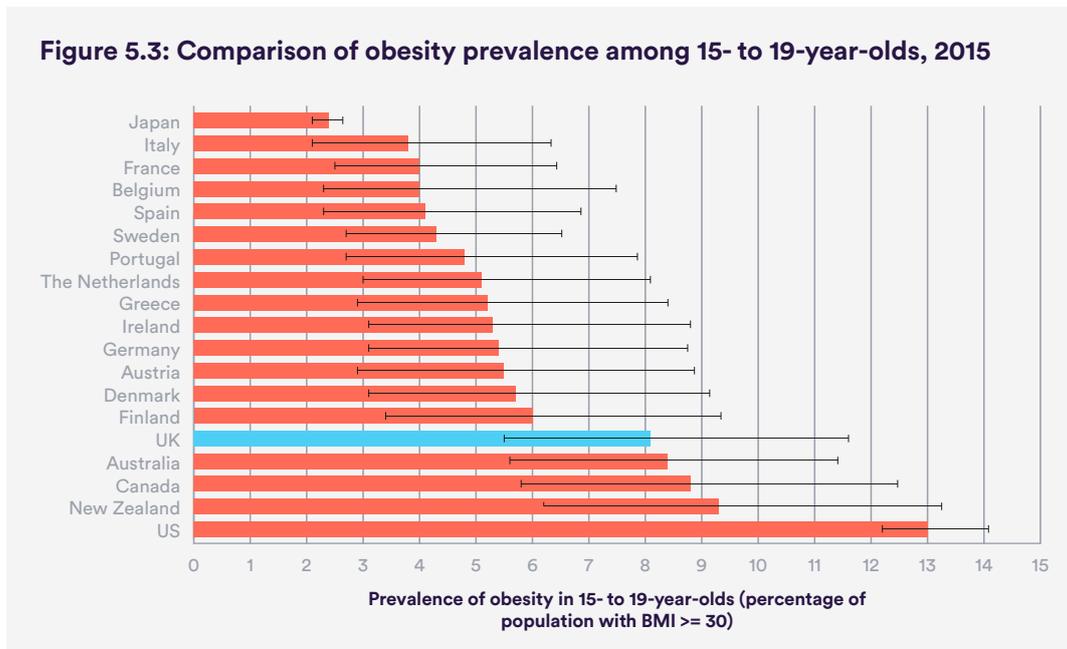
Obesity

Obesity in adolescence is associated with a wide range of serious health complications throughout the lifecourse, and an increased risk of the premature onset of illnesses, including diabetes and heart disease (Franks and others, 2010). There is strong evidence to show that obese adolescents are more likely than not to continue being obese into adulthood (Wright and others, 2001).

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. In wealthy European and Western countries in recent decades, there has been an increased intake of energy-dense foods that are high in fat and sugar, and a decrease in physical activity due to the sedentary nature of modern jobs, changing modes of transportation and increased urbanisation (Popkin, 2006). These trends are likely to be related to the increased rates of obesity seen.

The most widely used measure of weight status is body mass index (BMI), which is a measure of weight adjusted for height. For children and adolescents, weight and height both increase over time because of normal growth. BMI is therefore usually age- and sex-specific, often referred to as BMI-for-age. After BMI for children and adolescents is calculated, it is expressed as a population percentile, which describes the result in relation to BMI data collected in population surveys.

Obesity is commonly defined in two different ways. In the UK, public health surveillance often defines obesity in children as a BMI over the 95th centile of the UK 1990 growth reference, which is the measure we have used in this report when looking at the UK alone. The International Obesity Task Force (IOTF) uses a set BMI cut-off for obesity (BMI ≥30) regardless of the age of the child (Public Health England, 2016), which is a more stringent measure. The IOTF cut-offs are most commonly used for international comparisons of overweight and obesity in children under the age of 18, and we have therefore used this definition for those indicators in this report that relate to international comparisons.

Within England, using data collected from the National Childhood Measurement Programme in 2016/17 and the standard UK cut-off of BMI over the 95th centile, it is estimated that one in five (20%) children are obese by the end of primary school when they are aged 10 or 11 (NHS Digital, 2017b). Figure 5.3 shows a comparison of our 19 high-income countries, using the more stringent IOTF BMI cut-off for obesity, in 2015. According to this measure, the UK had the highest proportion of 15- to 19-year-olds (8.1%) who were obese among the European comparator group and the fifth-highest proportion among all 19 countries included in the analysis.

Figure 5.3: Comparison of obesity prevalence among 15- to 19-year-olds, 2015

Prevalence of obesity in 15- to 19-year-olds (percentage of population with BMI >= 30)
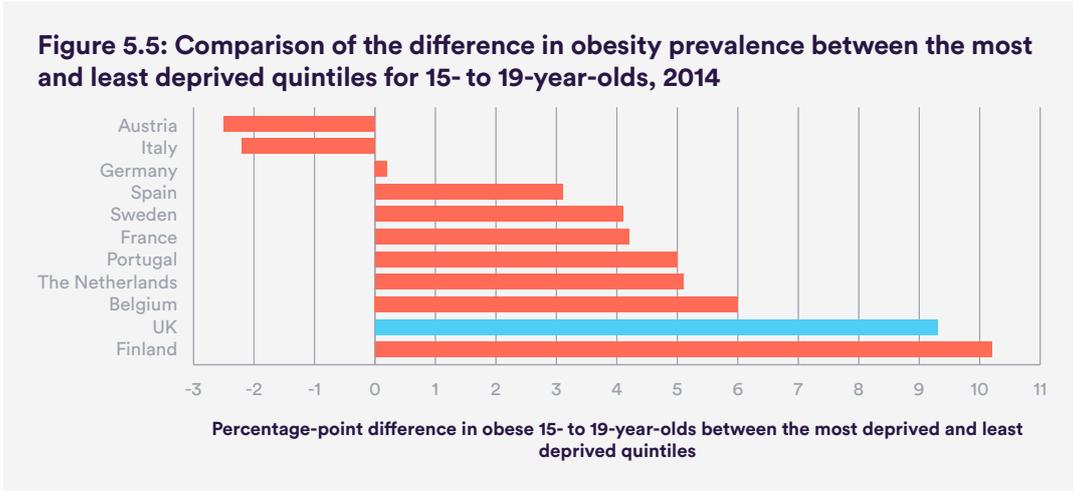
Source: Global Burden of Disease study, 2016 (accessed between April–November 2018). 95% confidence intervals displayed.

Worldwide, the proportion of children and young people classified as obese has increased since 1980 (Public Health England, 2016). Figure 5.4 shows that there was an overall increase in obesity prevalence among 15- to 19-year-olds in the UK from 5.6% in 1995 to 8.1% in 2015. For all years reviewed, the UK's obesity prevalence was closer to the worst-performing (US) than the best-performing (Japan) country.

Figure 5.4: Comparison of trends in obesity prevalence among 15- to 19-year-olds, 1995–2015, selected countries
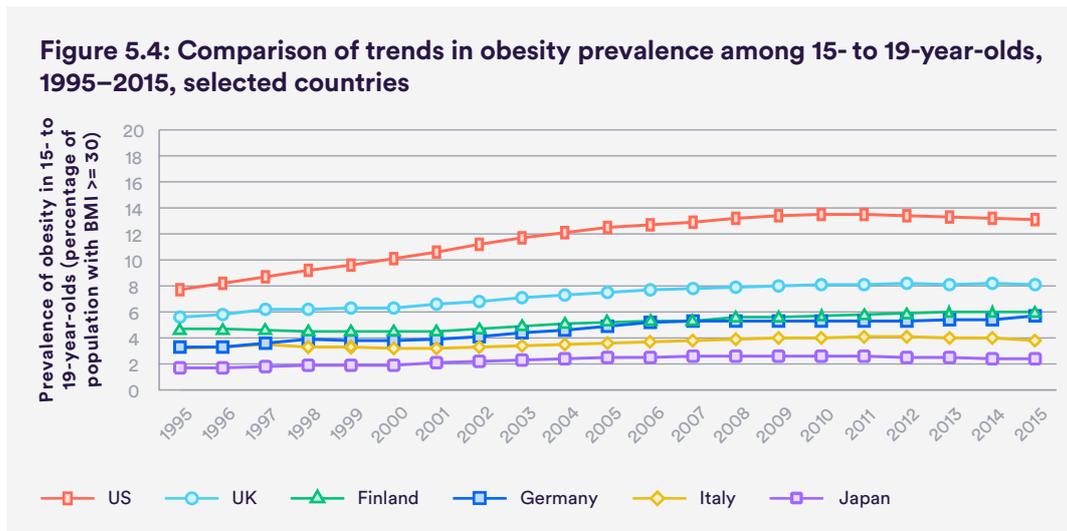
Source: Global Burden of Disease study, 2016 (accessed between April–November 2018).

There is a clear association between adolescent obesity prevalence and socioeconomic deprivation. Figure 5.5 shows that among 15- to 19-year-olds in similar high-income countries, in 2014 the UK had the second-highest difference in obesity prevalence between young people living in the richest areas and those living in the poorest areas. There were, however, only a few countries with reliable-enough data to be included in this comparison.

Figure 5.5: Comparison of the difference in obesity prevalence between the most and least deprived quintiles for 15- to 19-year-olds, 2014

Percentage-point difference in obese 15- to 19-year-olds between the most deprived and least deprived quintiles

Source: Eurostat.

Note: Income quintile group is computed on the basis of the total equivalised disposable income attributed to each member of the household (for more details on the definition, please consult EU-SILC reference metadata file).

The UK government has published new measures to tackle obesity in its recent Childhood Obesity Plan (Department of Health and Social Care, 2018). One important measure that has already been introduced is a tax on high-sugar soft drinks, which has led to several soft drinks being reformulated. There is evidence to support a greater role for government policy in tackling obesity, attempting to alter the 'upstream factors' of obesity in young people and reducing inequality in obesity prevalence, rather than solely focusing on the impact of individual behaviour change (Finegood and others, 2010).

Providing evidence-based services to support overweight children and young people is also vital. This ranges from better preventative measures through to the commissioning of specific interventions such as bariatric surgery (Viner and others, 2018). Health professionals have individual responsibility too and must ensure that they make every contact with young people and their carers count, through raising issues of weight management with their patients regardless of age.
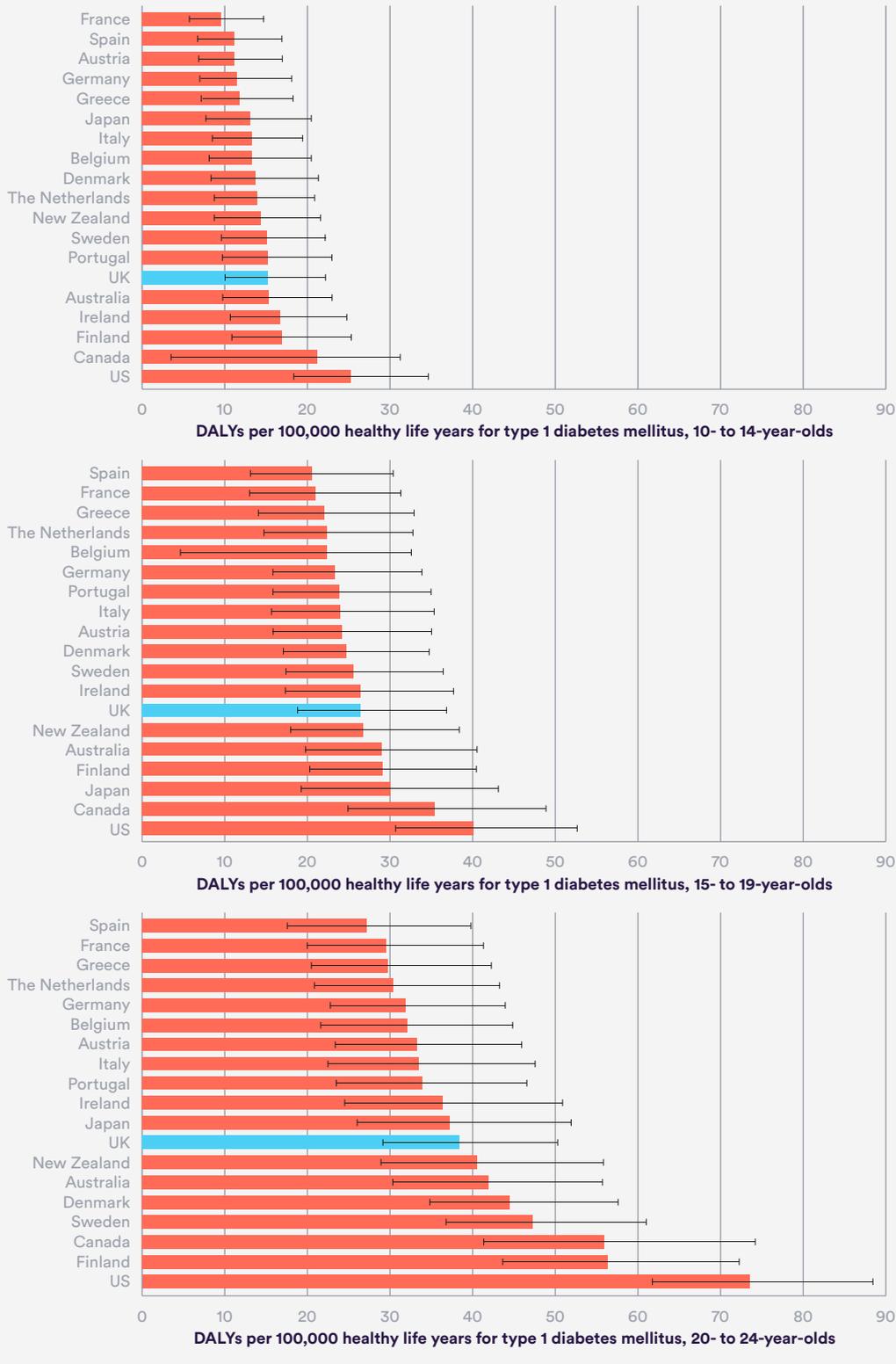
Diabetes

Diabetes is a serious lifelong health condition, where the body does not produce enough of the hormone insulin – which allows the body to metabolise glucose – or does not respond effectively to the insulin that it produces. Diabetes is generally classified into two types: type 1 diabetes, where the body's immune system attacks the cells that produce insulin; and type 2 diabetes, usually acquired in adulthood, where either the production of insulin, or the body's sensitivity to insulin, is reduced. In adolescence and early adulthood, type 1 diabetes is far more prevalent than type 2 diabetes. The peak age of diagnosis of type 1 diabetes in the UK is between 10 and 14 years of age (Diabetes UK, 2014).

Complications from poorly controlled diabetes lead to serious morbidity and mortality for young people with the condition (Royal College of Paediatrics and Child Health, 2016). Controlling blood sugar levels (glycaemic control) in children with diabetes is therefore key to preventing complications. There are no internationally comparable, country-level data on glycaemic control, and in the absence of such data the Global Burden of Disease Study (GBD) measures the burden of diabetes among adolescents and young people using disability-adjusted life years (DALYs) associated with type 1 diabetes to provide an indication of the disease burden of poor glycaemic control. These DALYs refer to complications that specifically arise such as eye problems, kidney problems, neuropathy, foot ulcers and psychological problems.

Figure 5.6 shows the DALY rate per 100,000 healthy life years associated with type 1 diabetes for young people in three age bands in 2017 (see Chapter 1 for information on how DALYs are calculated). In the UK, the type 1 diabetes DALY rate for those aged 10–14 was 15.3 per 100,000 healthy life years for this age group. The rate increased to 26.4 for those aged 15–19 and to 38.4 for those aged 20–24. The UK fell in the bottom half of the group of countries analysed, having the sixth-highest DALY rate for type 1 diabetes for those aged 10–14, and having the seventh-highest and eighth-highest DALY rate for those aged 15–19 and 20–24 respectively.

Figure 5.6: Comparison of disability-adjusted life years (DALYs) per 100,000 healthy life years for type 1 diabetes among young people aged 10−24, 2017

DALYs per 100,000 healthy life years for type 1 diabetes mellitus, 10- to 14-year-olds

DALYs per 100,000 healthy life years for type 1 diabetes mellitus, 15- to 19-year-olds

DALYs per 100,000 healthy life years for type 1 diabetes mellitus, 20- to 24-year-olds

Source: Global Burden of Disease study, 2016 (accessed between April–November 2018).
95% confidence intervals are displayed.

The National Paediatric Diabetes Audit for 2016–17 estimated that there were 29,153 children and young people with diabetes under the age of 24 in the UK (Royal College of Paediatrics and Child Health, 2016). The vast majority of diabetes at this age is type 1. However, this is likely to be an underestimate of population prevalence as some diabetes will not yet be diagnosed or will not yet have come to the attention of health services.

Young people diagnosed with diabetes who are aged over 12 in the UK have certain annual checks and processes that they need to undergo to monitor for the development of diabetes complications. The National Paediatric Diabetes Audit for 2016–17 reported that only 43.6% of those aged over 12 received all seven key health care checks during the previous year of care (Royal College of Paediatrics and Child Health, 2016). This is a marker of care quality that will contribute to the burden of disease attributable to diabetes that this age group experiences.

Overall, the combination of national and international findings suggests that improved age-appropriate education and interventions are required to promote better diabetes control in young people aged 10–24 in the UK. This includes the role of health services in the individual's transition from children's services to adult care at around the age of 18, and the challenges this poses.

Cancer

Cancer is relatively rare in young people compared with adults, but is now one of the leading causes of death in the adolescent and young adult age group (Public Health England, 2017). In the UK, on average, 2,400 young people aged 14–24 are diagnosed with cancer every year, and approximately 300 of this age group die of cancer each year (Cancer Research UK, 2017).

The most common cancers for this age group are lymphomas (cancer starting in the infection-fighting cells of the immune system, including Hodgkin disease and non-Hodgkin lymphoma), followed by carcinomas (malignant tumours on the surface or lining of an organ within the body). Cancers show different distributions by gender. There are more lymphomas and germ cell tumours (in cells producing sperm and eggs) and more leukaemia (cancer

of the white blood cells) among young men, and more carcinomas and malignant melanoma among young women (Cancer Research UK, 2017).

Figure 5.7 shows all-cancer mortality rates per 100,000 for 15- to 19-year-olds and 20- to 24-year-olds, by gender, for the UK and the 18 comparator countries. We have not presented data for 10- to 14-year-olds as occurrence is very low and figures may vary considerably from year to year. Most of the data relate to 2013, with exceptions for Belgium, Canada, Denmark, Greece, Italy and New Zealand, where data were not available for 2013 and the closest available year was substituted instead. It should be noted that the absolute number of deaths is quite small when it is split by gender, which makes meaningful comparison challenging. This may explain the variation in the UK's position, which goes from a fairly good one for females aged 15–19, to a much poorer position for females aged 20–24. There is also likely to be significant year-on-year variation, for the same reason. Overall, relative to the comparator countries, the UK ranked among the middle of the pack across genders and age groups.
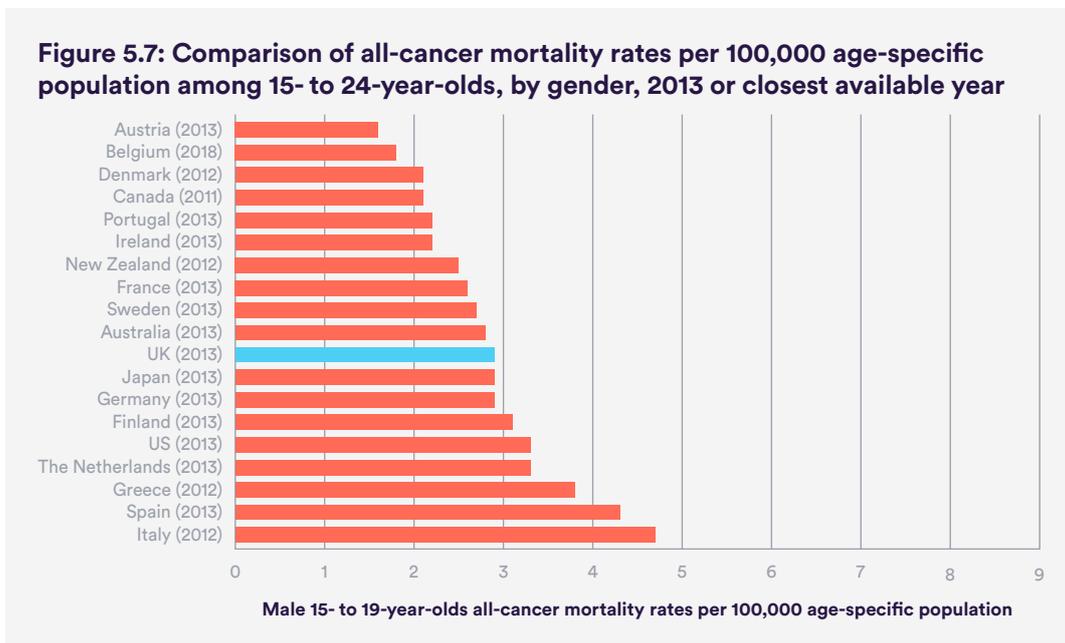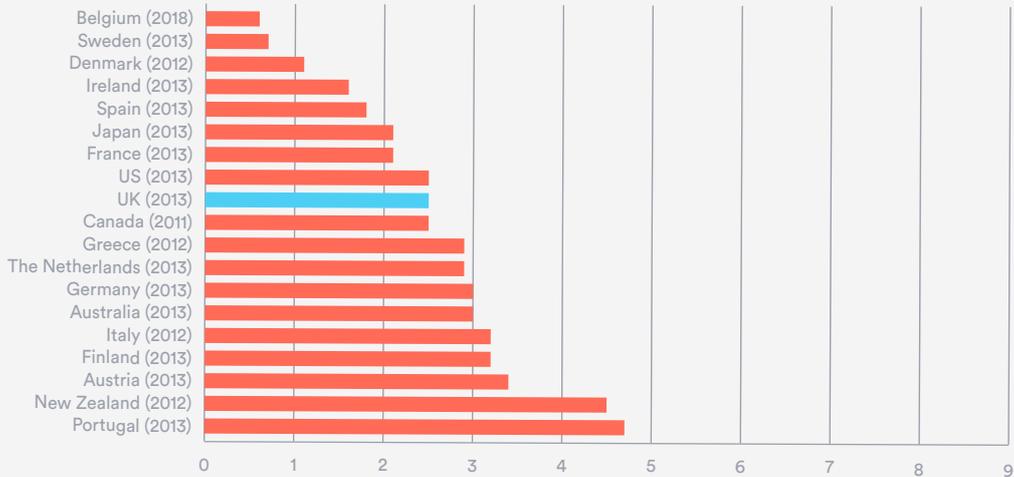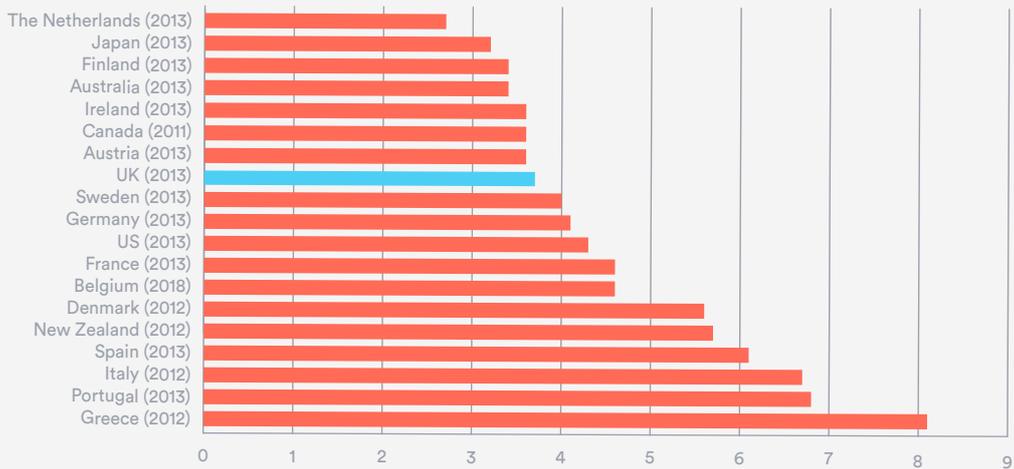
Figure 5.7: Comparison of all-cancer mortality rates per 100,000 age-specific population among 15- to 24-year-olds, by gender, 2013 or closest available year

Male 15- to 19-year-olds all-cancer mortality rates per 100,000 age-specific population

Figure 5.7 continued

Female 15- to 19-year-olds all-cancer mortality rates per 100,000 age-specific population

Male 20- to 24-year-olds all-cancer mortality rates per 100,000 age-specific population
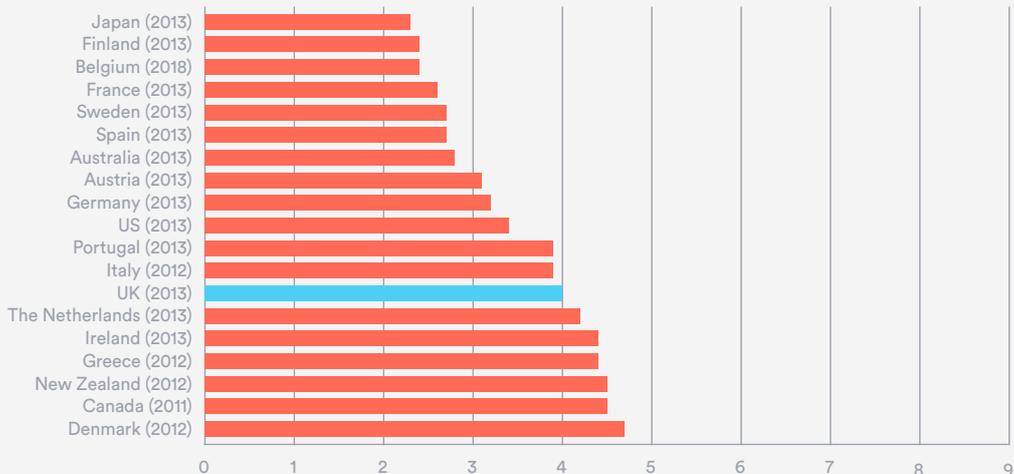
Female 20- to 24-year-olds all-cancer mortality rates per 100,000 age-specific population

Source: WHO cancer mortality database.

The small numbers also hinder the identification of clear trends. Cancer registry data compiled by Cancer Research UK (2017) suggest that cancer diagnoses among 15- to 24-year-olds in the UK have increased by approximately a fifth since the 1990s, but that there has also been a fall in mortality. Figure 5.8 shows that, within the UK, the all-cause cancer mortality rate decreased for young men aged 15–19 from 5.2 deaths per 100,000 population in 1998 to 2.9 deaths per 100,000 population of that age and gender in 2013, and for young women of the same age the rate declined from 3.3 deaths per 100,000 population in 1998 to 2.5 deaths per 100,000 in 2013. Figure 5.8 shows that the general trend in all-cause cancer mortality was also downwards for men aged 20–24 between 1998 and 2013. However, the all-cause cancer mortality rate for women in this age group appears to have fluctuated, with not much of a decline in the past two decades.

Figure 5.8: All-cancer mortality trends for 15- to 19-year-olds and 20- to 24-year-olds, by gender, UK, 1998–2013

Source WHO Cancer Mortality Database.

Comparing changes in all-cause cancer mortality over time internationally can be misleading, especially if broken down by gender, as numbers are small and can vary considerably from year to year, so we have not presented the international comparison trends here.

Suicide

Despite an increasing concern about the rise in the prevalence of mental health problems in young people aged 10–24, it is difficult to find comparable, robust, international data on the prevalence of symptoms among this age group. Although it is an extreme measure, suicide rate is one indicator of the mental health of a population. Suicide is one of the top-three causes of death among young people aged 15–19 globally (World Health Organization, 2014a). However, it is a rare event and so only measures the very tip of the iceberg, which is a key limitation. For the purposes of our comparisons we have used the intentional self-harm death rate measure from the Global Burden of Disease Study as a measure of suicide.

Figure 5.9 shows that the suicide rate in the UK for 10- to 14-year-olds in 2016 was 0.2 per 100,000 of this age group. The rate rose through the age ranges, to 4.6 per 100,000 among those aged 15–19 and to 9.2 per 100,000 population among those aged 20–24. The UK had one of the lowest suicide rates for those aged 10–14 when compared with the other 18 countries, and the seventh-lowest and eighth-lowest suicide rates for those aged 15–19 and 20–24 respectively.

Figure 5.9: Comparison of suicide rates per 100,000 age-specific population among young people aged 10–24, 2016

Suicide rate 10- to 14-year-olds per 100,000 age-specific population

Suicide rate 15- to 19-year-olds per 100,000 age-specific population

Suicide rate 20- to 24-year-olds per 100,000 age-specific population
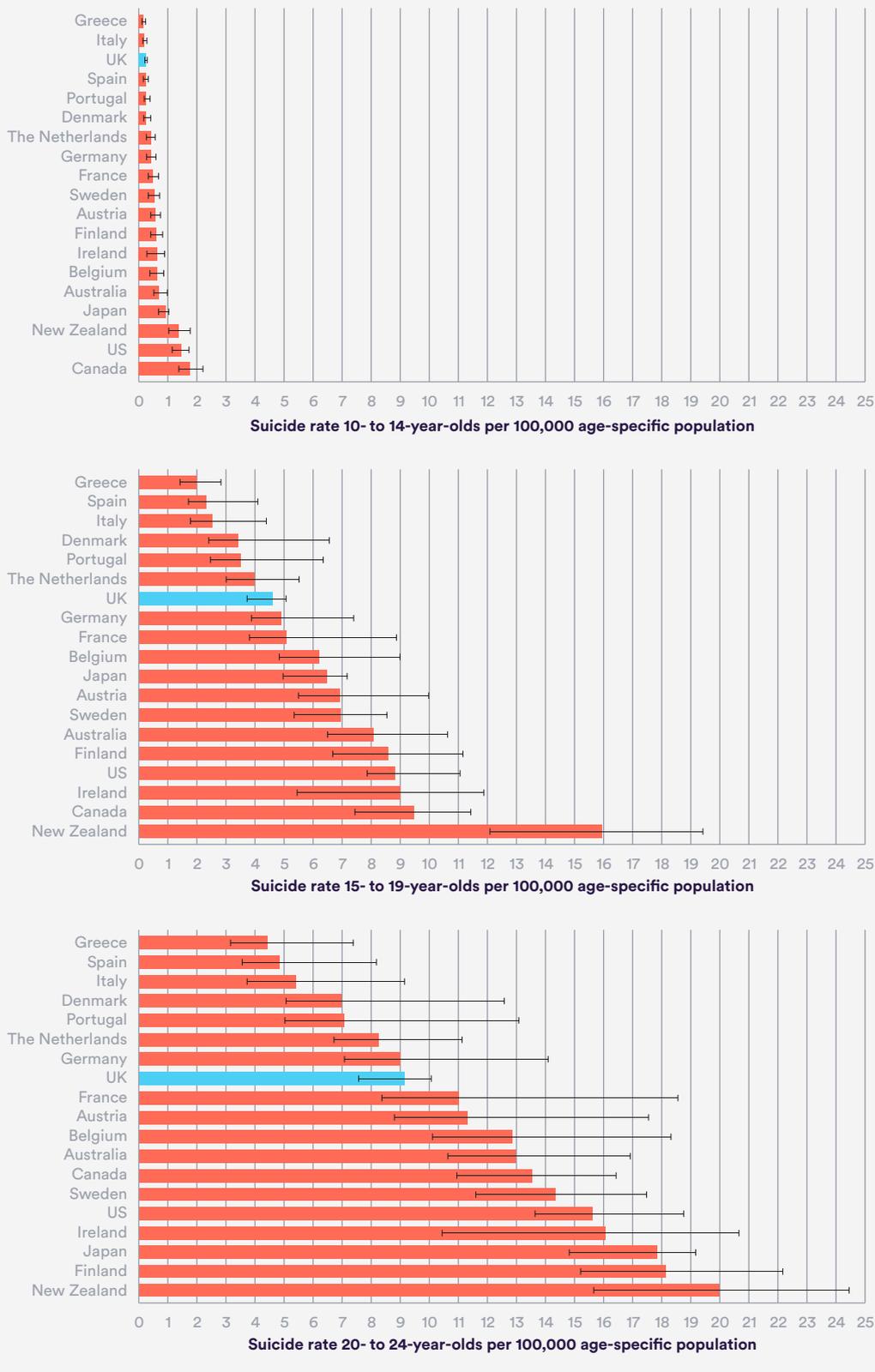
Source: Global Burden of Disease study, 2016 (accessed September 2018). 95% confidence intervals displayed.

Figure 5.10 shows a comparison of the trends in suicide rates for 15- to 19-year-olds in Greece (the country in our analysis with the lowest suicide rate), New Zealand (the country with the highest) and the UK, from 1998 to 2016, again using data from the Global Burden of Disease Study. It demonstrates that there was a decrease in the rate in the UK over the period, from 6.2 per 100,000 population in 1998 to 4.6 per 100,000 population in 2016. There was also a decrease in the rate for those aged 20–24 in the UK from 1998 to 2004. The suicide rate then plateaued until 2009, following which there has been a further slight decline. The suicide rate for 15- to 19-year-olds and 20- to 24-year-olds in Greece generally remained flat between 1998 and 2016. This is at odds with other data, which show the suicide rate among young men aged 15–24 in European countries to be significantly higher following the 2008 global economic recession (Chang and others, 2013), and therefore raises some concerns about data accuracy. New Zealand had significantly higher suicide rates from 1998 to 2016, across both 15–19 and 20–24 age bands, when compared with the UK.

Figure 5.10: Comparison of suicide rate trends for 15- to 19-year-olds, New Zealand, UK and Greece, 1998–2016
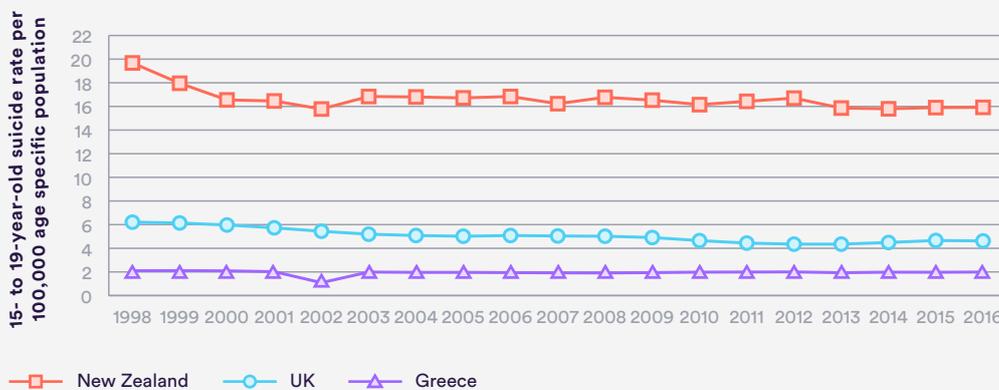
Source: Global Burden of Disease study, 2016 (accessed September 2018).

Nearly all deaths from suicide are preventable. There is a national target to reduce the suicide death rate by 10% in England by 2020/21, which was highlighted in NHS England's *Five Year Forward View for Mental Health* (NHS England, 2016). The new NHS *Long Term Plan* also sets suicide reduction as a continuing priority, with strategies including early intervention and investment in mental health services (Department of Health and Social Care, 2019). Similar to other health outcomes, there is evidence that

socioeconomic disadvantage or living in an area of socioeconomic deprivation increases the risk of suicidal behaviour (Samaritans, 2017), suggesting that targeted approaches are needed in areas of multiple deprivation or with high proportions of young people living in material poverty.

Road traffic injuries and deaths

Road traffic injuries are a major cause of death among people in their late teens and early twenties in the UK (Public Health England, 2017). In 2016 in Britain, road accidents killed 313 young people aged 10–24, and left 6,503 more seriously injured (Department for Transport, 2018). Around the world, young men are more likely to be involved in road traffic accidents than young women (World Health Organization, 2018a).

Figure 5.11 shows the comparative death rate in similar high-income countries from road traffic injuries per 100,000 population aged 10–24 in 2016, broken down into three five-year age bands. The UK had a relatively low rate for all three age groups compared with the other countries. This was particularly so for the youngest age group (10–14), for which the UK had the second-lowest rate after Japan.

Figure 5.11: Comparison of death rates per 100,000 age-specific population due to road traffic injuries among young people aged 10–24, 2016

10- to 14-year-olds' mortality rate per 100,000 age-specific population, due to road traffic injuries

15- to 19-year-olds' mortality rate per 100,000 age-specific population, due to road traffic injuries

20- to 24-year-olds' mortality rate per 100,000 age-specific population, due to road traffic injuries
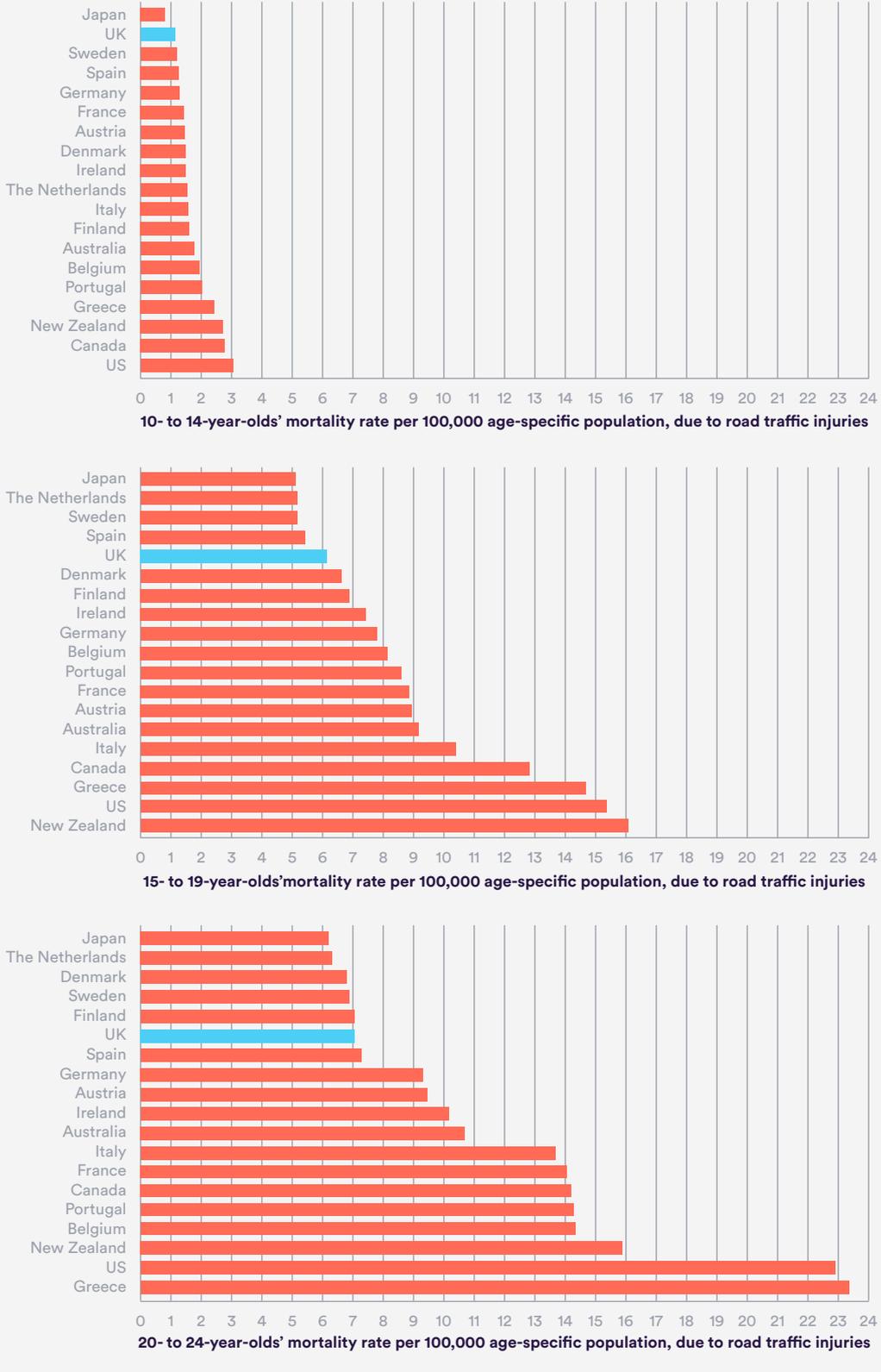
Source: Global Burden of Disease study, 2016 (accessed June 2018).

Using the overall measure of the burden of disease (disability-adjusted life years/DALYs), Figure 5.12 shows the impact of road traffic injuries, including both deaths and years lost to disability, in 2016. Again, the data are presented for three five-year age bands. The patterns for DALYs and for the overall mortality rate (Figure 5.11) were very similar. However, the UK ranked relatively better for DALYs than mortality in the older 20–24 age group, suggesting that, for this age group, the UK is relatively stronger on preventing serious injury than on preventing death.

Figure 5.12: Disability-adjusted life years (DALYs) per 100,000 healthy life years attributed to road traffic injuries, by age, 2016

DALYs per 100,000 healthy life years attributed to road traffic injuries, 10- to 14-year-olds

DALYs per 100,000 healthy life years attributed to road traffic injuries, 15- to 19-year-olds

DALYs per 100,000 healthy life years attributed to road traffic injuries, 20- to 24-year-olds
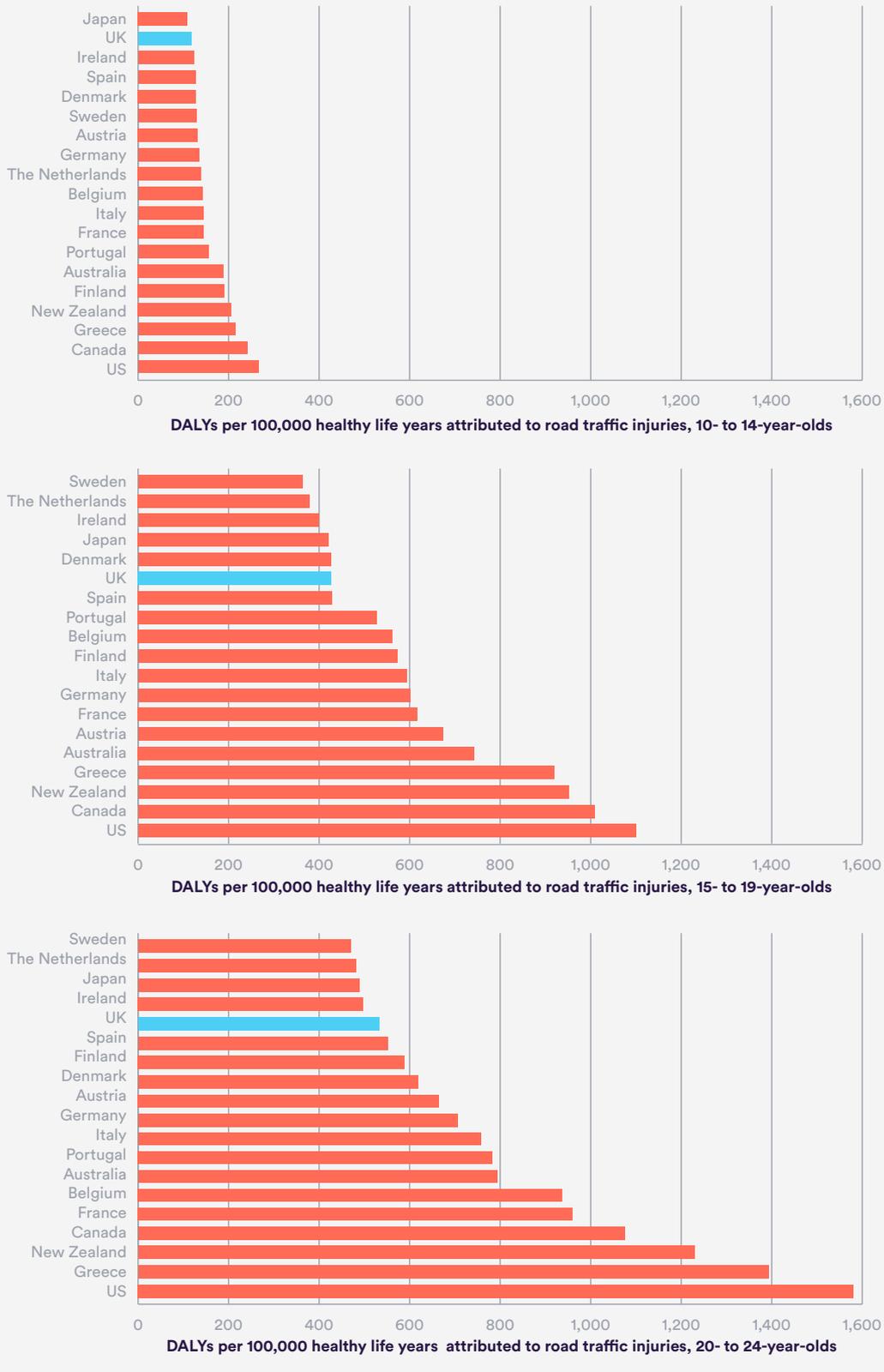
Source: Global Burden of Disease study, 2016 (accessed January 2019).

Transport injuries include: pedestrian injuries, cyclist injuries, motorcyclist injuries, motor vehicle injuries, other road injuries, other transport injuries.

The general trend in the DALY rate associated with road traffic injuries in the UK was downwards from 1998 to 2016, for all three age groups. Deaths from road traffic accidents have also generally been falling since 1996, but improvements in deaths from road traffic accidents appear to have stalled since 2013 for those aged 15–19 in the UK. Figure 5.13 shows the death rate per 100,000 young people aged 15–19 from 1996 to 2016. The trends in the countries with the highest rate (New Zealand) and the lowest rate (Japan) for this age group are shown alongside the UK, which follow the same downward trend.

Figure 5.13: Comparison of road traffic injury death rates per 100,000 population among 15- to 19-year-olds, New Zealand, UK and Japan, 1996–2016
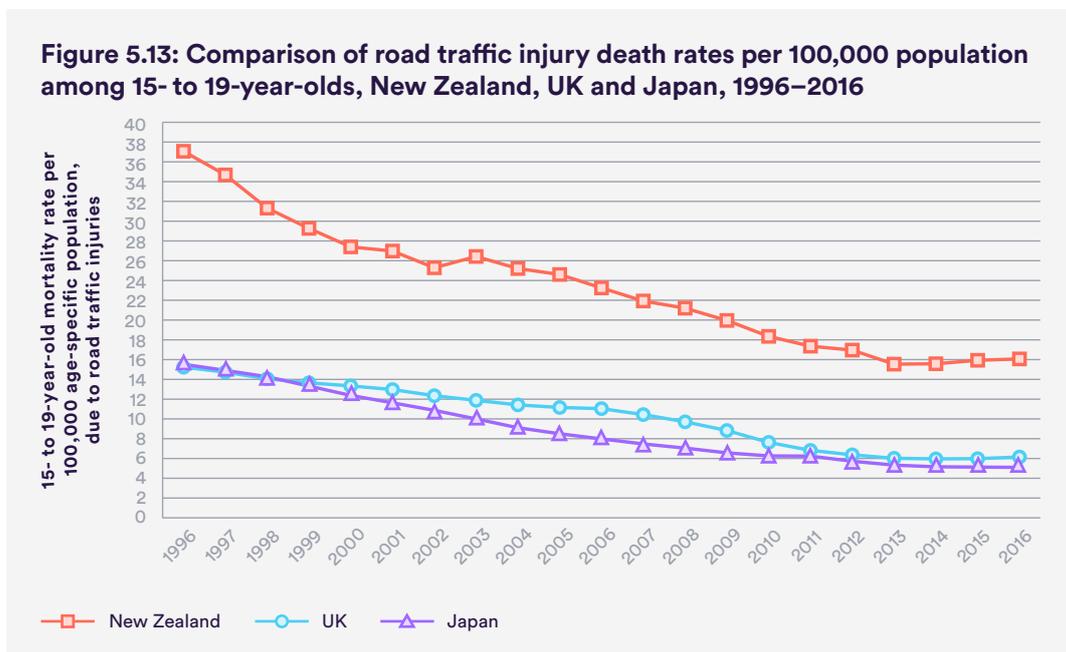
Source: Global Burden of Disease study, 2016 (accessed June 2018).
Transport injuries include: pedestrian injuries, cyclist injuries, motorcyclist injuries, motor vehicle injuries, other road injuries, other transport injuries.

The UK's positive record on road deaths among young people is generally attributed to the three Es of road safety policy: engineering, enforcement and education. The development of safer cars, safer road infrastructure, the enforcement of seat-belt use, speed limits and improved driver behaviour through education have all played a part. Advances in medical technology and the development of trauma networks that provide specialist care to young people who have been involved in road traffic accidents have also contributed towards the declining trend in road traffic injuries and deaths in the UK (Sethi and others, 2007).

The successful reduction of deaths from road traffic injuries is an example of how progress can be made more effectively when corporate interests (in this case of car manufacturers) align with those of health services and public health specialists. Innovation in safer car design has been led primarily by manufacturers themselves, who understand that this investment will result in safer cars, which can increase rather than erode their profit margins.

While the decline in the road traffic injury death rate in the UK should be celebrated, there is no room for complacency. Road traffic injury deaths in the UK disproportionately affect the poorest young people. Those aged 10–14 and living in the poorest areas are 3.7 times more likely to be seriously injured or killed in road traffic accidents compared with those living in the richest areas (Public Health England, 2014). While social factors such as educational level and risk profiles may play a part, there is evidence to suggest that factors under the control of policy-makers – such as poorer road infrastructure in deprived areas – are likely to contribute towards this inequality (Public Health England, 2014).

6 Discussion and recommendations

The period between 10 and 24 years of age is often considered to be one of the healthiest in the lifespan. As a result, this age group has attracted less policy interest than some others, and received less investment in terms of health services and the promotion of positive health outcomes (Sheehan and others, 2017). However, adolescents and young adults experience huge developmental changes – behaviourally, emotionally, socially and economically – and therefore adolescence and early adulthood offer a unique window of opportunity to intervene to promote health and prevent the development of health inequalities (British Medical Association, 2016). Between the ages of 10 and 24, young people's dependence on adults is constantly evolving along a continuum to independence. Health policy and services need to recognise this and develop services that are tailored to the unique challenges that this dynamic developmental stage poses (Sawyer and others, 2012). There is not only a health argument for investing in young people but also an economic one. A recent paper has estimated that an investment in this age group will yield a 10-fold economic benefit for later adulthood and for tomorrow's children (Sheehan and others, 2017).

The value of international comparisons

Even though international comparisons of health outcomes for this age group provide a useful tool for monitoring progress and performance, they are not without their limitations. For our analyses in this report we have used indicators where robust and comparable data are available, but Figure 6.1 highlights the need to handle these international comparisons with care. More work needs to be done to build consensus on the key indicators for measuring adolescent health, and the pioneering work of the World Health Organization is moving this agenda forward. Its newly formed Global Action for Measurement of Adolescent Health (GAMA) Group aims to improve health

for adolescents and young people over the life course. The Lancet Commission on adolescent health has also strongly advocated for robust international comparable data on the state of young people's health. However, key gaps in international data on adolescent health have been identified, such as a lack of data on adolescents' use of health services (Patton and others, 2012). There is a need for governments and research organisations to collaborate internationally to widen the evidence base further.

Figure 6.1: Making the most of international comparative indicators

Be wary of individual observations that are extreme – experience suggests that this is often the result of data artefacts. Focus on patterns that look broadly similar.

Try to look at change over time – even if the baselines are different, there may be more value in looking at trends.

Look for similar patterns in related indicators – 'triangulation'. No single data item or indicator is perfect.

Consider the likely explanation for observed variances. Do they fit with your perceptions of how things work in different countries?

Remember that some of the indicators prompt as many questions as they provide answers. Understanding what really lies behind observed differences would require an in-depth analysis of additional data in the specific areas of care.

Sources: Cheung (2018); Kossarova and others (2015).

Summary of the main findings

The UK is one of the largest economies in the world, and it has a health service, paid for by the public, whose founding principle is that it is freely delivered to all based only on need. In terms of health outcomes for young people, we therefore have every right to expect the UK to perform well in international comparisons. Our analysis of indicators related to the state of adolescent and early adult health provides a snapshot of how the UK is performing in comparison to 18 other similar high-income countries, and the picture is mixed. Where the UK is doing well, lessons can be learnt to sustain improvements. Where the UK's performance is lagging or where improvements have stalled, policy initiatives and action need to be prioritised at both local and national levels.

There are several key areas where the UK is performing particularly poorly, ranking near the bottom of the group of similar high-income countries that we chose for the analyses in this report (see Table 6.1). These areas include obesity prevalence, longstanding illness, exercise achievement levels, severe material deprivation, NEET rates particularly for those aged 15–19, the adolescent birth rate and the overall burden from mortality and poor health (DALYs).

When looking at the trends for these indicators, some are more promising than others. The adolescent birth rate has been falling over the past decade and will hopefully continue in this direction. However, for other indicators such as obesity prevalence, the trend is upwards. Indeed, there is evidence that obesity prevalence is rising at a faster rate than a decade ago, giving considerable cause for concern. The trends for longstanding illness, exercise levels and severe material deprivation are also deteriorating more rapidly than they were a decade ago. Meanwhile, initial improvements in asthma deaths have stalled in the past few years.

The UK is performing in the middle of the group in a number of areas, including cancer mortality, deaths from suicide, and health-related behaviours such as smoking, alcohol consumption and cannabis use. Moreover, the indicators relating to alcohol consumption, smoking and the use of cannabis among young people aged 16–24 have all been improving over the past decade in the UK (NHS Digital, 2016).

Areas in which the UK is performing well in our international comparisons currently include road traffic injury death rates and all-cause adolescent mortality. However, taking a closer look at the trends in these areas, it appears that initial improvements have stalled, and rates may have even increased slightly in the past two years, suggesting that there is no room for complacency.

Overall, these data paint a mixed picture of the state of young people's health in the UK, particularly because even for those indicators where the UK compares well with other countries, longitudinal analyses show that historic improvements may be coming to a halt.

Table 6.1: Summary of the results

Indicator (and age range)	The UK relative to comparator countries (unless otherwise specified)	The UK trend over the past decade (unless otherwise specified)
Young people as a proportion of the total population (10–24)	Similar	Stable
Obesity prevalence (15–19)	Worse	Worsening
Longstanding illness (16–24)	Worse	Worsening
Exercise (England and Wales) (11)	Worse**	Worsening
Severe material deprivation (15–24)	Worse	Worsening
Adolescent birth rate (15–19)	Worse	Improving
Asthma death rate (10–24)	Worse	Improvement halted
Adolescent all-cause DALY rate (10–24)	Worse*	Improvement halted
Diabetes DALY rate (10–24)	Worse*	Stable
Not in education, employment or training (15–19)	Worse*	Improving
All-cause cancer mortality rate (10–24)	Similar	Improving
Daily smoking (18–24)	Similar	Improving
Alcohol consumption at least once a week (15)	Similar**	Improving
Cannabis use in the past 30 days (15)	Similar**	Improving
Suicide death rate (15–24)	Similar	Improvement halted
Adolescent mortality rate (10–19)	Better	Improvement halted
Road traffic injury death rate (10–24)	Better	Improvement halted
Road traffic injury DALY rate (10–24)	Better	Improving

Notes: The table reflects a heuristic approach to determining the UK's position relative to other countries, rather than a statistical assessment, and should be regarded only as a guide. Where data are presented separately for different age groups, we took an approximate average of the rankings. 'Worse' = in the bottom third of the relevant chart(s). 'Similar' = in the middle third of the relevant chart(s). 'Better' = in the top third of the relevant chart(s). 'Worsening' = the time trend worsened over the previous year (or more). 'Improvement halted' = the time trend was level for the previous year (or more) when previously it had been improving. 'Stable' = the time trend has been level for a number of years. 'Improving' = the time trend improved in the previous year (or more).
* borderline between worse and similar.
** ranks are different for different countries of the UK.

What is immediately striking is that it is in the indicators that relate primarily to young people's own health-related behaviours where the UK sits on a par with its peers, and where we have seen improvement over recent years. Over the past decade, young people in the UK have been drinking less alcohol and have been increasingly unlikely to smoke tobacco or use cannabis. Even where our comparator countries seem to outperform us in terms of current rates, such as the adolescent birth rate, we have seen a steady improvement over time. This runs counter to the popular misconception that young people are behaving more and more recklessly when it comes to their health – an eternal fallacy that seemingly affects every successive generation.

Of course, adolescence and young adulthood are associated with risk-taking behaviours, which is part of a normal neurodevelopmental trajectory. Despite these promising trends, therefore, it is crucial that we continue to support these improvements, which have their roots in robust public health and policy interventions and, in the case of tobacco in particular, strong legislative action. There is increasing pressure on public health budgets, which have inexorably diminished over the past decade, and this has had a disproportionate impact on children and young people (Wickham and others, 2016). We are putting progress at risk if these budgetary cuts are not reversed or, worse still, continue to deepen.

Where we perform less well than our peers is in indicators related to how we fail to support young people with long-term health conditions to manage their care. Our adolescents and young adults are more likely to die from asthma, and more likely to be obese and overweight, than those in the comparator countries. And the burden of disability in adolescents, including from long-term conditions such as diabetes, is greater in the UK.

Furthermore, this situation is getting worse over time. The uncomfortable conclusion from the data is that our policies and health services are not performing to the same standard as those in other comparable nations, and we are letting our adolescents and young adults down. It is to our own discredit that this is happening at a time when more and more adolescents and young adults themselves are making better choices around their health-related behaviours.

Our economic policies are also hitting our young people harder than in other comparable countries. Despite living in the world's fifth-largest economy, young people aged 20–24 in the UK are experiencing one of the highest rates of severe material deprivation among the countries in our international comparison. Reducing poverty among young people is key to improving their health outcomes in the UK, requiring a strong cross-government commitment. But it is not simply a case of income: inequality also matters. Social and economic inequalities are a major cause of health inequalities, and across almost all of the indicators in this report we have seen a dramatic gradient in health outcomes relating to socioeconomic differences. To improve health outcomes and reduce health inequalities, cross-sectoral working is required. This is not only to reinvigorate the policy focus on systematically reducing poverty that was created by the now-abolished Child Poverty Act 2010, but also to encourage policies that target the broader social determinants of health, such as high-quality education and employment for young people (Wickham and others, 2016).

There is good news too. Our young people are less likely to die from any cause and specifically from traffic-related injuries than young people in most other comparable countries. But this optimism is tempered by the realisation that the rate of improvement is stalling, and in the case of overall mortality among those aged 20–24, the trend has reversed. This concerning pattern coincides with other health trends, such as the rise in infant mortality and the recent halt in improvements in life expectancy in the UK (Cheung, 2018). While there is no clear evidence explaining these trends in the UK, there is growing evidence that austerity policies provide at least a partial explanation for changes to mortality rates (Hiam and others, 2018).

Policy-makers should read the data in this report with foreboding. Despite the observed improvements in health-related behaviours among adolescents and young adults, the data show that we compare poorly with other similar countries in providing high-quality health care for this age group, and that this is getting worse. Unless we address this shortfall, there is a real and looming risk that our mortality outcomes will slip from their relatively lofty position and start to decline by comparison, as we have done for other age groups in childhood already (Viner and others, 2011).

Recommendations

To improve the state of young people's health in the UK, we must take an approach across three broad categories:

- policy initiatives focusing on young people
- the improvement of everyday practice
- specific action to reduce health inequalities.

Policy initiatives focusing on young people

A recent World Health Organization (2018b) report on the situation of adolescent health in Europe highlighted that the UK continues to lack a clear policy mandate that provides guidance on funding and policy priorities to meet the health needs of adolescents and young adults. The publication of the *NHS Long Term Plan* has a welcome focus on children and young people, which for the first time in a generation reflects a focus on children and young people's health (Department of Health and Social Care, 2019). It is imperative that this new strategy has a specific focus on the health needs of young people aged 10–24. This is particularly important because resources are limited and choices need to be made to prioritise health resources effectively.

There is increasing evidence for the impact of social determinants – such as poverty and educational attainment – on health outcomes for adolescents and young adults. We therefore recommend adopting an 'adolescent health in all policies' approach, assessing the particular impact they may have on this age group because of policy decisions made in sectors outside of health, such as education, employment and housing. The education sector plays a critical role in promoting health in adolescence and early adulthood. We recommend that every school adopts a health-promoting ethos. According to guidance from the World Health Organization (2017b), schools in the UK should provide skills-based health education, including comprehensive sex and relationship education. Implementation of something similar is under way in England. If well implemented, this will enable young people to develop the knowledge, attitudes and life skills needed to make positive health decisions in the future.

In relation to obesity, the government's second chapter of the Childhood Obesity Plan is welcomed, particularly because the actions targeting the advertising and pricing of unhealthy foods are bolder (Department of Health and Social Care, 2018). The plan needs to be implemented urgently in view of the rising obesity prevalence in the UK. Actions need to be wider than simply targeting individual behaviour. Local authorities potentially need new powers to tackle the local 'obesogenic' environment. There may be important lessons to be learnt from the success of the UK government's National Teenage Pregnancy Strategy for England (Social Exclusion Unit, 1999), which was a nationally led, locally implemented, evidence-based strategy. This was funded for an adequate length of time (10 years) and can be applied to conditions in which the causes are complex, multifactorial and interconnected, similar to obesity (Hadley and others, 2016).

More broadly, policy initiatives that have been successful in delivering significant health improvements, such as the reduction of road traffic injury deaths, provide a salutary lesson. The innovation that has led to safer cars has largely been led by the motor vehicle industry. The alignment of the interests of businesses and industry with those of health services and public health professionals was critical. In contrast, the UK performs poorly where the interests of health professionals and services differ from that of industry, for example in relation to obesity. Attempts to align the interests of the food industry with those of young people have been challenging. However, successes have been seen occasionally when there has been this kind of conflict of interest between industry and public health professionals, in areas such as smoking and alcohol, where strong fiscal policies and legislation have played a key role in reducing rates.

In relation to risk-taking behaviour and substance misuse, there is a clear need for population interventions to be tailored to the specific needs of adolescents and young adults. Evidence-based interventions that fall in this category include enforcing a lower alcohol limit for young drivers than for older adults (World Health Organization, 2017b). Continued enforcement of legislation around smoking and alcohol consumption, and advertising targeted at young people, are also recommended.

These examples point the way for health to have a positive effect on gains in consumption even in the face of challenges from industry.

The improvement of everyday practice

The UK is performing poorly in indicators for long-term conditions that require longer-term proactive management such as asthma and diabetes. It can be difficult for health services to engage with young people aged 10–24 in particular because of the developmental changes that occur during this life stage. Young people with long-term conditions also face considerable challenges as they transition from children's services to adult services, which are not necessarily youth-friendly and do not meet their developmental needs. It is also worth mentioning that across this age range, young people will also transition from having their parents help them manage their condition to managing their health independently.

If improvements in outcomes for long-term conditions are to be made, health services responsible for helping young people to manage their long-term conditions need to be youth-friendly, and to proactively engage with young people in the design and delivery of their services. We recommend initiatives such as the Department of Health and Social Care's 'You're Welcome' quality criteria for youth-friendly health services, which is a systematic framework to help commissioners and service providers to improve the suitability, accessibility, quality and safety of health services for young people (AYPH and others, 2017). It is important that these standards are applied not just to paediatric services but also to general practice and to adult services that frequently encounter 18- to 24-year-olds. In addition, there is evidence to show that young people feel more at ease accessing voluntary services for conditions such as sexual health problems (Hagell and others, 2017). We therefore recommend better partnership working between statutory health services and the voluntary, community and social enterprise sectors to provide a better-coordinated service that also delivers continuity of care for young people. Services should meaningfully engage with and empower young people so that they can be involved in designing services that meet their needs (World Health Organization, 2017b).

Specific action to reduce health inequalities

Health inequalities cast a looming shadow over the headline findings throughout this report. The evidence suggests that health services contribute only between 15% and 43% towards our health status (Buck and Maguire, 2015).

Over a million young people aged 11–19 in the UK live in a family in receipt of means-tested child-related income supplements (Department for Work and Pensions, 2016). And nearly half of the 21–24 age group earn less than the Living Wage (Department for Work and Pensions, 2017). This is an issue that deserves the greatest attention and effort from a broad, shared coalition across all sectors.

Equitable access to health services is a founding principle of the NHS, and while health services cannot themselves tackle poverty and other social determinants of health, they can make sure that these determinants are not exacerbated by barriers in accessing services. This may result in different approaches for young people compared with those for adults, responding to the demands of their life stage. Recommendations for new models of care to reduce inequalities have begun to spell out what these might include (Reed, 2018). It may be necessary to target resources at groups of young people who face health inequalities – such as those living in poverty, looked-after young people and young people in the criminal justice system – to make health services more equitable and begin to make inroads into reversing the decades-long inequalities that continue to plague our young people.

7 Conclusion

The international comparisons in this report have provided us with important messages about the state of young people's health in the UK when compared with the health of their counterparts in 18 other similar, high-income countries, across 17 key health indicators. Although there are some positive findings, the UK's performance on many indicators for the 10–24 age group lags behind that of the comparator countries, and there is much room for improvement. But some successes have shown that improvement is possible.

There is an urgent need to prioritise and invest in the 10–24 age group to create a future healthy adult population. We need to take specific action to improve young people's health in the second decade of life. This is both to ensure that the gains made from interventions in the early years are sustained and protected but also because interventions for young people need to be different to those for young children. Supporting and enabling young people to manage their health independently and well is a unique part of the life course.

Caution does need to be applied when interpreting country-level comparisons since there are significant societal, population and economic differences that may affect individual health outcome indicators far more than specific health or policy interventions. Research institutes and governments around the world should therefore collaborate, collect robust data and support the development of the datasets so that meaningful comparisons can be made. However, provided that international comparisons are sensitively interpreted, they provide an extremely powerful tool that can be used to monitor performance and progress and advocate for investment in young people's health.

Today's generation of young people in the UK are making better choices about their health than at almost any other time in living memory. By contrast, health services, professionals and policy-makers are failing to live up to their part of the bargain, at best failing to keep pace with comparable countries, and at worst, falling behind. There are early signs already that we are putting decades of progress in young people's health in jeopardy. Our international comparisons tell us that we can, and must, do better.

References

Action on Smoking and Health (2018) *Young People and Smoking*. Action on Smoking and Health.

Arseneault L, Cannon M, Poulton R, Murray R, Caspi A and Moffitt TE (2002) 'Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study', *BMJ* 325(7374), 1212–3.

Association for Young People's Health, British Youth Council and Youth Focus North West (2017) *You're Welcome Pilot 2017: Refreshed standards for piloting*. British Youth Council. www.youngpeopleshealth.org.uk/yourewelcome/ standards. Accessed 22 January 2019.

Asthma UK (2014) *Asthma UK Briefing: The UK National Review of Asthma Deaths*. Asthma UK.

Asthma UK (2019) *The reality of asthma care in the UK: Annual asthma survey 2018*.

Booth FW, Roberts CK and Laye MJ (2012) 'Lack of exercise is a major cause of chronic diseases', *Comprehensive Physiology* 2(2), 1143–211. doi: 10.1002/ cphy.c110025.

British Lung Foundation (2012) 'Asthma statistics'. https://statistics.blf.org. uk/asthma. Accessed 23 October 2018.

British Medical Association (2016) *Reducing Health Inequality*. British Medical Association.

Buck D and Maguire D (2015) *Inequalities in Life Expectancy: Changes over time and implications for policy*. The King's Fund. www.kingsfund.org.uk/ publications/inequalities-life-expectancy. Accessed 22 January 2019.

Cancer Research UK (2017) 'Cancer statistics for the UK'. www.cancerresearchuk.org/health-professional/cancer-statistics-for- the-uk. Accessed 22 January 2019.

Chang S-S, Stuckler D, Yip P and Gunnell D (2013) 'Impact of 2008 global economic crisis on suicide: time trend study in 54 countries', *BMJ* 347, f5239. doi: 10.1136/BMJ.F5239.

Cheung R (2018) *International Comparisons of Health and Wellbeing in Early Childhood*. Nuffield Trust and Royal College of Paediatrics and Child Health. www.nuffieldtrust.org.uk/research/international-comparisons-of-health-and-wellbeing-in-early-childhood#partners. Accessed 22 January 2019.

Dayan M, Ward D, Gardner T and Kelly E (2018) *How Good is the NHS?* Nuffield Trust. www.nuffieldtrust.org.uk/research/the-nhs-at-70-how-good-is-the-nhs. Accessed 22 January 2019.

Department for Education (2017) *Participation in Education, Training and Employment by 16–18 Year Olds in England: End 2017*. Department for Education. www.gov.uk/government/statistics/participation-in-education-training-and-employment-2017. Accessed 22 January 2019.

Department for Transport (2018) 'Casualties involved in reported road accidents (RAS30)'. www.gov.uk/government/statistical-data-sets/ras30-reported-casualties-in-road-accidents. Accessed 22 January 2019.

Department for Work and Pensions (2016) *Households Below Average Income*. GOV.UK. www.gov.uk/government/statistics/households-below-average-income-199495-to-201415

Department for Work and Pensions (2017) 'Proportion of employees earning below £8.75 per hour working outside London, £10.20 per hour working in London: April 2017'. Office for National Statistics. www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/adhocs/007717proportionofemployeesearningbelow875perhourworkingoutsidelondon1020perhourworkinginlondonapril2017

Department of Health (2011) *Start Active, Stay Active: Report on physical activity in the UK*. GOV.UK. www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers. Accessed 22 January 2019.

Department of Health and Social care (2018) *Childhood Obesity: A plan for action, chapter 2*. GOV.UK. www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2. Accessed 22 January 2019.

Department of Health and Social Care (2019) *The NHS Long Term Plan*. Department of Health and Social Care. www.longtermplan.nhs.uk/publication/nhs-long-term-plan. Accessed 22 January 2019.

Diabetes UK (2014) Facts and stats. Diabetes UK. www.diabetes.org.uk/resources-s3/2017-11/diabetes-key-stats-guidelines-april2014.pdf

Elgar FJ, Pförtner TK, Moor I, De Clercq B, Stevens GWJM and Currie C (2015) 'Socioeconomic inequalities in adolescent health 2002–2010: a time-series analysis of 34 countries participating in the Health Behaviour in School-aged Children study', *The Lancet* 385(9982), 2088–95. doi: 10.1016/S0140-6736(14)61460-4.

Ermisch J (2003) *Does a 'Teen-birth' have Longer-term Impacts on the Mother? Suggestive evidence from the British Household Panel Study*. Working paper. Institute for Social and Economic Research. www.iser.essex.ac.uk/research/publications/working-papers/iser/2003-32. Accessed 22 January 2019.

Esteban-Cornejo I, Carlson JA, Conway TL, Cain KL, Saelens BE, Frank LD, Glanz K, Roman CG and Sallis JF (2016) 'Parental and adolescent perceptions of neighborhood safety related to adolescents' physical activity in their neighborhood', *Research Quarterly for Exercise and Sport* 87(2), 191–9. doi: 10.1080/02701367.2016.1153779.

European Commission (2013) *European Union Statistics on Income and Living Conditions (EU-SILC) Description of Dataset*. European Commission. http://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions. Accessed 22 January 2019.

Eurostat (2018) *Being Young in Europe Today*. European Commission.

Feng Z, Ralston K, Everington D and Dibben C (2018) 'P10: Long term health effects of NEET experiences: evidence from Scotland', *Journal of Epidemiology and Community Health* 72(suppl 1), A65–A66. doi: 10.1136/jech-2018-ssmabstracts.136.

Finegood DT, Merth TDN and Rutter H (2010) 'Implications of the foresight obesity system map for solutions to childhood obesity', *Obesity* 18(suppl 1), S13–S16. doi: 10.1038/oby.2009.426.

Foster J (2016) *The Licensing Act (2003): Its uses and abuses 10 years on*. Institute of Alchol Studies. www.ias.org.uk/What-we-do/IAS-reports/Licensing-Act-2003-Its-uses-and-abuses-10-years-on-Documents.aspx. Accessed 22 January 2019.

Franks PW, Hanson RL, Knowler WC, Sievers ML, Bennett PH and Looker HC (2010) 'Childhood obesity, other cardiovascular risk factors, and premature death', *The New England Journal of Medicine* 362(6), 485–93. doi: 10.1056/NEJMoa0904130.

Gavin A (2004) 'Smoking is a major cause of premature death worldwide', *Evidence-based Healthcare* 8(2), 95–6. doi: 10.1016/J.EHBC.2004.02.006.

Global Asthma Network (2018) *The Global Asthma Report 2018*. Global Asthma Network. http://globalasthmareport.org. Accessed 23 January 2019.

Global Health Data Exchange (2018) *Global Burden of Disease Study*. Global Health Data Exchange.

Green KM, Doherty EE and Ensminger ME (2017) 'Long-term consequences of adolescent cannabis use: examining intermediary processes', *The American Journal of Drug and Alcohol Abuse* 43(5), 567–75. doi: 10.1080/00952990.2016.1258706.

Hadley A, Ingham R and Chandra-Mouli V (2016) 'Implementing the United Kingdom's ten-year teenage pregnancy strategy for England (1999–2010): how was this done and what did it achieve?', *Reproductive Health* 13(1), 139. doi: 10.1186/s12978-016-0255-4.

Hagell A, Shah R and Coleman J (2017) *Key Data on Young People 2017*. Association for Young People's Health. www.youngpeopleshealth.org.uk/key-data-on-young-people. Accessed 22 January 2019.

Hagell A, Shah R, Viner R, Hargreaves D, Varnes L and Heys M (2018) *The Social Determinants of Young People's Health: Identifying the key issues and assessing how young people are doing in the 2010s*. The Health Foundation, Association for Young People's Health and UCL London. www.health.org.uk/publications/the-social-determinants-of-young-people%E2%80%99s-health. Accessed 22 January 2019.

Hale DR and Viner RM (2018) 'How adolescent health influences education and employment: investigating longitudinal associations and mechanisms', *Journal of Epidemiology and Community Health* 72(6), 465–70. doi: 10.1136/jech-2017-209605.

Harden A, Brunton G, Fletcher A and Oakley A (2009) 'Teenage pregnancy and social disadvantage: systematic review integrating controlled trials and qualitative studies', *BMJ* 339, b4254. doi: 10.1136/bmj.b4254.

Harkness SK, Kroska A and Pescosolido BA (2016) 'The self-stigma of psychiatric patients: implications for identities, emotions, and the life course', *Advances in Medical Sociology* 17, 207–33. doi: 10.1108/S1057-629020160000017008.

Health and Social Care Information Centre (2015) *Statistics on Smoking, England – 2015*. Health and Social Care Information Centre. https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-smoking/statistics-on-smoking-england-2015. Accessed 22 January 2019.

Hiam L, Harrison D, McKee M and Dorling D (2018) 'Why is life expectancy in England and Wales "stalling"?', *Journal of Epidemiology and Community Health* 72(5), 404–8. doi: 10.1136/jech-2017-210401.

Hibell B, Guttormsson U and Ahlström S (2012) *The 2011 ESPAD Report: Substance use among students in 36 countries*. The Swedish Council for Information on Alcohol and Other Drugs (CAN).

Home Office (2018) *Drug Misuse: Findings from the 2016/17 Crime Survey for England and Wales: Further information*. Home Office.

Inchley J, Currie D, Young T, Samdal O, Torsheim T, Augustson L, Mathison F, Aleman-Diaz A, Molcho M, Weber M and Barnekow V eds (2016) *Growing Up Unequal: Gender and socioeconomic differences in young people's health and well-being: Health Behaviour in School-aged Children (HBSC) study: International report from the 2013/2014 survey*. World Health Organization. www.euro.who.int/en/publications/abstracts/growing-up-unequal.-hbsc-2016-study-20132014-survey. Accessed 23 January 2019.

Jennison KM (2004) 'The short-term effects and unintended long-term consequences of binge drinking in college: a 10-year follow-up study', *The American Journal of Drug and Alcohol Abuse* 30(3), 659–84. doi: 10.1081/ADA-200032331.

Kessler RC, Berglund P, Demla O, Merikangas KR and Walters EE (2005) 'Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication', *Archives of General Psychiatry* 62(6), 593. doi: 10.1001/archpsyc.62.6.593.

Kossarova L, Bardsley M and Blunt I (2015) *Focus on: International comparisons of healthcare quality*. QualityWatch research report. Nuffield Trust and Health Foundation.

Kossarova L, Cheung R, Hargreaves D and Keeble E (2017) *Admissions of Inequality: Emergency hospital use for children and young people*. Nuffield Trust. www.nuffieldtrust.org.uk/research/admissions-of-inequality-emergency-hospital-use-for-children-and-young-people. Accessed 22 January 2019.

McGovern L, Miller G and Hughes-Cromwick P (2014) *The Relative Contribution of Multiple Determinants to Health Outcomes*. Health policy brief. HealthAffairs. www.healthaffairs.org/do/10.1377/hpb20140821.404487/full. Accessed 22 January 2019.

Mytton OT, Townsend N, Rutter H and Foster C (2012) 'Green space and physical activity: an observational study using Health Survey for England data', *Health & Place* 18(5), 1034–41. doi: 10.1016/j.healthplace.2012.06.003.

National Institute for Health and Care Excellence (2012) *Health Inequalities and Population Health*. National Institute for Health and Care Excellence. www.nice.org.uk/advice/lgb4. Accessed 22 January 2019.

New Policy Institute (2015) *Poverty among young people in the UK*. NPI, London

NHS Digital (2014) *Health and Wellbeing of 15-year-olds in England: Main findings from the What About YOUth?* Survey 2014. NHS Digital. https://digital.nhs.uk/catalogue/PUB19244. Accessed 20 February 2018.

NHS Digital (2016) *Smoking, Drinking and Drug Use Among Young People in England – 2016*. NHS Digital. https://digital.nhs.uk/data-and-information/publications/statistical/smoking-drinking-and-drug-use-among-young-people-in-england/2016. Accessed 22 January 2019.

NHS Digital (2017a) *Health Survey for England, 2016*. NHS Digital. https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/health-survey-for-england-2016. Accessed 6 November 2018.

NHS Digital (2017b) *National Child Measurement Programme – England, 2016–17*. NHS Digital. https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2016-17-school-year. Accessed 5 July 2018.

NHS England (2016) *Five Year Forward View for Mental Health*. NHS England. www.england.nhs.uk/mental-health/taskforce. Accessed 22 January 2019.

Office for National Statistics (2017) *Young People's Well-being: 2017*. Office for National Statistics. www.ons.gov.uk/releases/youngpeopleswellbeing2017. Accessed 22 January 2019.

Office for National Statistics (2018a) *Conceptions in England and Wales: 2016*. Office for National Statistics. www.ons.gov.uk/releases/conceptionsinenglandandwales2016. Accessed 22 January 2019. www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/conceptionandfertilityrates/bulletins/conceptionstatistics/2016

Office for National Statistics (2018b) *Population Estimates for the UK, England and Wales, Scotland and Northern Ireland: Mid-2017*. Office for National Statistics. www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2017. Accessed 22 January 2019.

Office for National Statistics (2018c) *Teenage Pregnancy – Year of Conception, Ending 31st December 2016*, Scotland. Office for National Statistics.

Office for National Statistics (2018d) *User Guide to Mortality Statistics*. Office for National Statistics. www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/methodologies/userguidetomortalitystatisticsjuly2017. Accessed 22 January 2019.

Patton GC, Coffey C, Cappa C, Currie D, Riley L, Gore F, Degenhardt L, Richardson D, Astone N, Sangowawa AO, Mokdad A and Ferguson J (2012) 'Health of the world's adolescents: a synthesis of internationally comparable data', *The Lancet* 379(9826), 1665–75. doi: 10.1016/S0140-6736(12)60203-7.

Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, Arora M, Azzopardi P, Baldwin W, Bonell C, Kakuma R, Kennedy E, Mahon J, McGovern T, Mokdad AH, Patel V, Petroni S, Reavley N, Taiwo K, Waldfogel J, Wickremarathne D, Barroso C, Bhutta Z, Fatusi AO, Mattoo A, Diers J, Fang J, Ferguson J, Ssewamala F and Viner RM (2016) 'Our future: a Lancet commission on adolescent health and wellbeing', *The Lancet* 387(10036), 2423–78. doi: 10.1016/S0140-6736(16)00579-1.

Popkin BM (2006) 'Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases', *The American Journal of Clinical Nutrition* 84(2), 289–98. doi: 10.1093/ajcn/84.2.289.

Public Health England (2014) *Reducing Unintentional Injuries on the Roads among Children and Young People under 25 Years*. GOV.UK. www.gov.uk/government/publications/reducing-unintentional-injuries-among-children-and-young-people. Accessed 22 January 2019.

Public Health England (2015) 'The burden of disease and what it means in England'. Blog. https://publichealthmatters.blog.gov.uk/2015/09/15/the-burden-of-disease-and-what-it-means-in-england

Public Health England (2016) *Child Obesity International Comparisons Data Factsheet*. Public Health England.

Public Health England (2017) *Health Profile for England 2017*. GOV.UK. www.gov.uk/government/publications/health-profile-for-england. Accessed 22 January 2019.

Reed S (2018) 'The NHS as an anchor'. www.health.org.uk/newsletter-feature/the-nhs-as-an-anchor. Accessed 22 January 2019.

Royal College of Paediatrics and Child Health (2016) *Paediatric Diabetes Audit Report 2016–17*. Royal College of Paediatrics and Child Health. www.rcpch.ac.uk/resources/national-paediatric-diabetes-audit-npda-national-reports. Accessed 22 January 2019.

Samaritans (2017) *Dying from Inequality: Socioeconomic disadvantage and suicidal behaviour*. Samaritans. www.samaritans.org/dying-from-inequality/report. Accessed 23 January 2019.

Sawyer SM, Afifi RA, Bearinger LH, Blakemore S-J, Dick B, Ezeh AC and Patton GC (2012) 'Adolescence: a foundation for future health', *The Lancet* 379(9826), 1630–40. doi: 10.1016/S0140-6736(12)60072-5.

Sawyer SM, Azzopardi PS, Wickremarathne D and Patton GC (2018) 'The age of adolescence', *The Lancet* 2(3), 223–8. doi: 10.1016/S2352-4642(18)30022-1.

Sethi D, Racioppi F and Bertollini R (2007) 'Preventing the leading cause of death in young people in Europe', *Journal of Epidemiology and Community Health* 61(10), 842–3. doi: 10.1136/jech.2007.063081.

Sheehan P, Sweeny K, Rasmussen B, Wils A, Friedman HS, Mahon J, Patton GC, Sawyer SM, Howard E, Symons J, Stenberg K, Chalasani S, Maharaj N, Reavley N, Shi H, Fridman M, Welsh A, Nsofor E and Laski L (2017) 'Building the foundations for sustainable development: a case for global investment in

the capabilities of adolescents', *The Lancet* 390(10104), 1792–806. doi: 10.1016/S0140-6736(17)30872-3.

Social Exclusion Unit (1999) *Teenage Pregnancy*. HMSO.

The Lancet (2017) 'Investing in adolescent health and education could bring 10-fold economic benefit'. The Lancet, 19 April, www.who.int/pmnch/media/news/2017/lancet_education/en. Accessed 23 January 2019.

Townshend JM and Duka T (2005) 'Binge drinking, cognitive performance and mood in a population of young social drinkers', *Alcoholism: Clinical & Experimental Research* 29(3), 317–25. doi: 10.1097/01.ALC.0000156453.05028.F5.

UNICEF (2011) *The State of the World's Children: Adolescence: An age of opportunity*. UNICEF. www.unicef.org/sowc2011. Accessed 23 January 2019.

United Nations (2018) *World Youth Report: Youth and the 2030 Agenda for Sustainable Development*. United Nations.

Viner RM, Coffey R, Mathers C, Bloem P, Costello A, Santelli J and Patton GC (2011) '50-year mortality trends in children and young people: a study of 50 low-income, middle-income, and high-income countries', *The Lancet* 377(9772), 1162–74. doi: 10.1016/S0140-6736(11)60106-2.

Viner RM, Kinra S, Nicholls D, Cole T, Kessel A, Christie D, White B, Croker H, Wong ICK and Saxena S (2018) 'Burden of child and adolescent obesity on health services in England', *Archives of Disease in Childhood* 103(3), 247–54. doi: 10.1136/archdischild-2017-313009.

Wickham S, Anwar E, Barr B, Law C and Taylor-Robinson D (2016) 'Poverty and child health in the UK: using evidence for action', *Archives of Disease in Childhood* 101, 759–66

World Health Organization (no date) 'About social determinants of health'. www.who.int/social_determinants/sdh_definition/en. Accessed 25 January 2019.

World Health Organization (2014a) 'Adolescent health epidemiology'.
www.who.int/maternal_child_adolescent/epidemiology/adolescence/en

World Health Organization (2014b) 'Metrics: disability-adjusted life year
(DALY)'. www.who.int/healthinfo/global_burden_disease/metrics_daly/en

World Health Organization (2017a) *Adolescent Health and Development.*
WHO, South-East Asia Regional Office.

World Health Organization (2017b) *Global Accelerated Action for the Health of
Adolescents (AA-HA!): Guidance to support country implementation.* WHO.

World Health Organization (2018a) 'Road traffic injuries', www.who.
int/news-room/fact-sheets/detail/road-traffic-injuries. Accessed
23 January 2019.

World Health Organization (2018b) *Situation of Child and Adolescent Health
in Europe.* WHO. www.euro.who.int/en/publications/abstracts/situation-of-
child-and-adolescent-health-in-europe-2018. Accessed 23 January 2019.

Williams ML, Beevers S, Kitwiroon N and others, 'Chapter 8: Impact of air
pollution scenarios on inequalities' in Williams ML, Beevers S, Kitwiroon N,
Dajnak D, Walton H, Lott MC, Pye S, Fecht D, Toledano MB and Holland M
eds (2018) *Public Health Air Pollution Impacts of Pathway Options to Meet the
2050 UK Climate Change Act Target: A modelling study.* NIHR Journals Library.

Wright CM, Parker L, Lamont D, Craft AW and Spence J (2001) 'Implications
of childhood obesity for adult health: findings from thousand families cohort
study', *BMJ* 323(7324), 1280–4. doi: 10.1136/BMJ.323.7324.1280.

Further reading

Alemán-Díaz AY, Backhaus S, Siebers LL, Chukwujama O, Fenski F, Henking CN, Kaminska K, Kuttumuratova A and Weber MW (2018) 'Child and adolescent health in Europe: monitoring implementation of policies and provision of services', *The Lancet Child & Adolescent Health* 2, 12, 891–904.

Royal College of Paediatrics and Child Health (2017) *The State of Child Health 2017*. Royal College of Paediatrics and Child Health. www.rcpch.ac.uk/resources/state-child-health-2017-full-report. Accessed 23 January 2019.

Viner R, Ward J, Cheung R, Wolfe I and Hargreaves D (2018) *Child Health in 2030 in England: Comprisons with other wealthy countries*. Royal College of Paediatrics and Child Health. www.rcpch.ac.uk/resources/child-health-england-2030-comparisons-other-wealthy-countries. Accessed 23 January 2019.

World Health Organization (2015) *Global Reference List of Health Indicators for Adolescents (aged 10–19 years)*. World Health Organization. www.who.int/maternal_child_adolescent/documents/adolescent-health-technical-consultation/en. Accessed 23 January 2019.

World Health Organization (2015) *Technical Consultation on Indicators of Adolescent Health*. World Health Organization. www.who.int/maternal_child_adolescent/documents/adolescent-health-technical-consultation/en. Accessed 23 January 2019.

Appendix: Key data sources

Crime Survey for England and Wales (CSEW)

"The Crime Survey for England and Wales (CSEW) is an important monitor of the extent of crime in England and Wales. It is used by the government to evaluate and develop crime reduction policies as well as providing vital information about the changing levels of crime over the past 30 years."
www.crimesurvey.co.uk/en/index.html

European School Survey Project on Alcohol and Other Drugs (ESPAD)

"European School Survey Project on Alcohol and Other Drugs (ESPAD) is a collaborative effort of independent research teams in more than 40 European countries and the largest cross-national research project on adolescent substance use in the world."
www.espad.org

Eurostat

"Eurostat is the statistical office of the European Union (EU) and a Directorate-General of the European Commission. Its key role is to supply statistics to other Directorates-General of the Commission and European institutions, so that they can define, implement and analyse policies that have an impact on institutions within the EU. With over 4,600 datasets containing more than 1.2 billion statistical data values, Eurostat is a mine of statistical information and covers all areas of European society, including health."
https://ec.europa.eu/eurostat

Global Burden of Disease Study

"The Global Burden of Disease Study (GBD) provides a tool to quantify health loss from hundreds of diseases, injuries and risk factors, so that health systems can be improved and disparities can be eliminated. The first GBD study quantified the health effects of more than 100 diseases and injuries for eight regions of the world in 1990. It generated comprehensive and internally consistent estimates of mortality and morbidity by age, sex and region. The study also introduced a new metric – the 'disability-adjusted life year' (DALY). Data from the GBD are published annually."
www.healthdata.org/gbd/about

Global Health Observatory data repository

"The Global Health Observatory data repository is the World Health Organization's gateway to health-related statistics for more than 1,000 indicators for its 194 member states. Data are organised so that progress towards Sustainable Development Goals (SDGs) can be monitored, including health status indicators to monitor progress towards the overall health goal of the SDGs, indicators to track equity in health and indicators for the specific health and health-related targets of the SDGs."
www.who.int/gho/en

Health Behaviour in School-aged Children (HBSC) study

"The Health Behaviour in School-aged Children (HBSC) study has been a pioneer in cross-national research, gaining insight into young people's wellbeing and health behaviours and their social context. This research collaboration with the WHO Regional Office for Europe is conducted every four years in 48 countries and regions across Europe and North America. With adolescents making up about a sixth of the world's population, the HBSC study uses its findings to inform policy and practice to improve the lives of millions of young people."
www.hbsc.org

Health Survey for England (HSE)

"The Health Survey for England series was established in 1991. It was designed to monitor health trends among the population of England, estimating the proportion of people who have specified health conditions and the prevalence of risk factors and behaviours associated with those conditions. The annual surveys provide regular information that cannot be obtained from other sources. Since 1994, the surveys have been carried out by the Joint Health Surveys Unit of the National Centre for Social Research (NatCen) and the Research Department of Epidemiology and Public Health at University College London (UCL)."
http://healthsurvey.hscic.gov.uk/support-guidance/public-health/health-survey-for-england-2017.aspx

World Obesity/Policy Prevention (Previously the International Obesity Task Force (IOTF))

World Obesity/Policy Prevention (formerly known at the International Obesity Task Force (IOTF) was set up to "advocate with governments, international and national health bodies, civil society organisations, and other key stakeholders around the world to change the narrative around obesity and achieve the political recognition which it deserves".
www.worldobesity.org/what-we-do/our-policy-priorities

National Child Measurement Programme (NCMP)

"The National Child Measurement Programme (NCMP) measures the height and weight of children in Reception class (aged 4 to 5) and year 6 (aged 10 to 11), to assess overweight and obesity levels in children within primary schools. The data can be used nationally to support local public health initiatives, and locally to inform the planning and delivery of services for children. The programme is recognised internationally as a world-class source of public health intelligence and holds UK National Statistics status."
https://digital.nhs.uk/services/national-child-measurement-programme

National Paediatric Diabetes Audit (NPDA)

"The National Paediatric Diabetes Audit (NPDA) is performed annually in England and Wales and measures the health outcomes and experiences of children and young people with diabetes. The sole aim is to provide information that leads to an improved quality of care for those children and young people. The audit is managed by the Royal College of Paediatrics and Child Health."
www.rcpch.ac.uk/work-we-do/quality-improvement-patient-safety/national-paediatric-diabetes-audit

Smoking, Drinking and Drug Use (SDDU) survey

"The Smoking, Drinking and Drug Use (SDDU) annual survey of young people in England, which has been conducted since 2001, helps central and local government to better understand young people's behaviours in relation to smoking, drinking and drug use, to develop policies, plan services and new initiatives, and to monitor and evaluate their impact. Participants are aged between 11 and 15. For each survey, around one in seven secondary schools in England is randomly chosen to take part. Nearly every type of school with pupils in years 7 to 11 is eligible for selection; only very small schools and special schools are excluded."
https://digital.nhs.uk/data-and-information/publications/statistical/smoking-drinking-and-drug-use-among-young-people-in-england

World Health Organization Cancer Mortality Database – International Agency for Research on Cancer (IARC)

"The World Health Organization's (WHO) International Agency for Research on Cancer (IARC) Cancer Mortality Database contains selected cancer mortality statistics by country, extracted from the WHO's Mortality Database. The original data have been converted and/or recoded to a common system before presentation."
www-dep.iarc.fr/WHOdb/WHOdb.htm

Nuffield Trust is an independent health charity. We aim to improve the quality of health care in the UK by providing evidence-based research and policy analysis and informing and generating debate.

The Association for Young People's Health is the leading independent voice for young people's health in the UK. We bridge the worlds of policy, practice and evidence to promote better understanding of young people's health needs, and to advocate for youth friendly health services.

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