



Public Health  
England

Protecting and improving the nation's health

# Public Health Outcomes Framework: Health Equity Report

## Focus on ethnicity

# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

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# Executive summary

## Introduction

Public Health England (PHE) has a statutory duty, under the Health and Social Care Act 2012, to have due regard to the need to reduce health inequalities. Health inequalities are differences in health between people or groups of people that may be considered unfair. Reducing inequalities should mean that everyone has the same opportunities to lead a healthy life, no matter where they live or who they are.

Like other public bodies, PHE also has a duty, under the Equality Act 2010, to ensure it considers the needs of all individuals in day to day work in shaping policy and delivering services. Providing health intelligence for groups which share protected characteristics (including age, sex, race and sexual orientation) helps PHE, and others, achieve this duty.

To help monitor fulfilment of these duties, 18 key indicators of health and the determinants of health have been selected by PHE's Health Equity Board to form part of the PHE Health Equity Dashboard. The Health Equity Board provides senior leadership, governance and oversight of PHE's fulfilment of these statutory duties.

The Health Equity Dashboard indicators are all drawn from the Public Health Outcomes Framework (PHOF) and are divided into three groups: core, overarching health outcomes, PHE priority areas, and social determinants of health. The latest version of the dashboard is provided in Appendix 1 at the end of this report. This report presents analysis and commentary on inequalities for each of the 18 dashboard indicators. It brings together recent data and provides an indication of recent trends where possible. This analysis will:

- support the government's vision for measurable and sustained reductions in health inequalities<sup>i</sup>
- support health and social care organisations to understand inequalities in health outcomes for different populations in England. This will support targeted preventative and early intervention work to address health inequalities
- address some gaps in existing data and analysis relating to health outcomes for specific population groups, and help to identify further gaps

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<sup>i</sup> The report includes measures of inequalities in life expectancy and healthy life expectancy. Reducing inequalities in these are key metrics which support two priority objectives (5 and 7) set out in the [Shared Delivery Plan](#) (the Department of Health's and its agencies' priority objectives for 2015 to 2020).

## Dimensions of inequality

Health inequalities exist across a range of dimensions or characteristics. The Dahlgren and Whitehead model (Box 1), highlights the wide range of factors which determine the health of the population, including personal characteristics, lifestyle factors, social networks, living and working conditions, and socio-economic and environmental conditions. This report presents indicators for selected determinants of health as well as health outcomes, and provides breakdowns of data across a range of determinants referred to as dimensions of inequality eg personal characteristics, including age, sex and ethnic group, in addition to socio-economic deprivation. The dimensions examined in the report also reflect, where possible, the 'protected characteristics' defined in the Equality Act 2010 (Box 1) and the term 'dimension of inequality' is used to refer to both determinants of health and protected characteristics.

This report draws on data which are currently reported in the Public Health Outcomes Framework (PHOF) data tool,<sup>ii</sup> many of which are reported by deprivation. Some other dimensions of inequality are also reported in the PHOF, and these have been included in this report where available. However, for this report, we have included additional data for ethnic groups, some of which are not currently available in the PHOF tool.

For the most part, this report considers individual dimensions of inequality or protected characteristics separately.<sup>iii</sup> In some cases, however, there will be relationships between different dimensions of inequality. For example, some ethnic groups are far more likely to live in deprived areas than others. If neighbourhood areas in England are ranked by deprivation and then categorised into ten different deprivation groups, the population of people in Black and Minority Ethnic groups are not evenly distributed across these deprivation groups. Eg In 2011, over 50% of people in the Bangladeshi and Pakistani ethnic groups lived in the most deprived 20% of areas in England, much higher percentages than other ethnic groups. Further details on the distribution of each ethnic group across deprivation groups are in Table A1 of Appendix 2.

In 2014/15 in England as a whole, 33% of 10-11 year olds had excess weight. But 43% of Bangladeshi children had excess weight and 39% of children in the most deprived areas had excess weight. As Bangladeshi children are more likely to live in deprived areas, it is difficult to determine the increased risk associated with deprivation, the increased risk associated with ethnicity, and the increased risk associated with a combination of ethnicity and deprivation. It is beyond the scope of this report to analyse the extent or impact of any interaction between different dimensions of inequality.

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<sup>ii</sup> A table showing the inequality dimensions included in the Public Health Outcomes Framework for each indicator can be found here: [www.phoutcomes.info/further-information](http://www.phoutcomes.info/further-information)

<sup>iii</sup> Most dimensions are reported separately, but the report does contain new analysis of smoking prevalence by ethnic group and religious group, broken down by sex.

It is also important to note that for many indicators, data for some dimensions of inequality are not routinely available. In particular, the availability of data for sexual orientation and disability is poor. As a consequence these have largely not been covered in this report, although the data that are available indicate that wide inequalities exist.

## Key messages

Despite the long term trend of improvement in life expectancy,<sup>iv</sup> infant mortality, and rates of premature deaths from cancer and cardiovascular disease in England as a whole since 2001-03, stark inequalities remain. There has been little change in the gap in male life expectancy, male and female healthy life expectancy, and premature cancer mortality. For female life expectancy, there has been a small widening of the gap between the most and least deprived areas. For premature cardiovascular disease mortality, considerable inequality by deprivation remains, with mortality rates in the most deprived tenth of areas almost 3.5 times higher than those in the least deprived tenth of areas in 2012-14.

Although we have seen a general improvement across indicators reflecting PHE priority areas, for example, falling smoking prevalence, TB incidence and percentage of people reporting low life satisfaction, the most recent data show wide inequalities across all indicators related to child health, mental health, smoking, alcohol misuse, and TB, and no trend indicating a clear narrowing of these inequalities.

The trend in indicators reflecting the wider determinants of health is mixed, with some indicators showing overall improvement: children not ready for school, and young people not in education, employment or training have both fallen in recent years. Although inequalities in these indicators remain, there has been some improvement in inequalities in readiness for school.

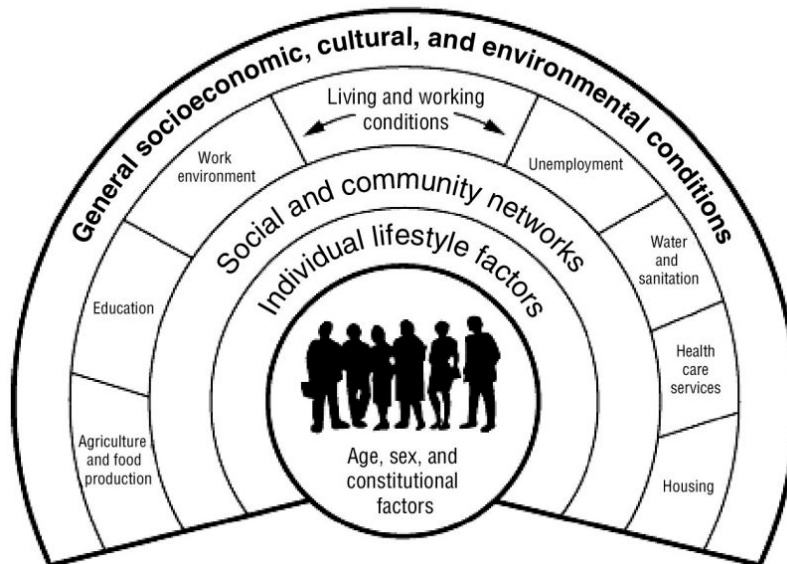
The report also shows wide inequalities in health by ethnicity and by country of birth across a range of indicators. However, this picture is complex and difficult to summarise with some groups doing well on some things and less well on others. For most indicators, it has not been possible to analyse trends in inequality by ethnic group. Where this has been possible, the picture is mixed. For example, inequality in low birth weight by ethnic group has narrowed, but there has been little change in inequality in infant mortality. Key findings across all ethnic groups are summarised below.

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<sup>iv</sup> There was a fall in life expectancy in 2015 and an increase in mortality rates for some leading causes of death and an increase in infant mortality. In this report, inequalities in life expectancy are examined using three-year pooled data up to the period, 2013-15. Inequalities in premature mortality and infant mortality are examined up to the period 2012-14.

### Box 1: Determinants of health and dimensions of inequality

Figure 1: The Dahlgren and Whitehead model of health determinants



Source: Dahlgren and Whitehead (1991).

Personal characteristics occupy the core of the model, and include sex, age, ethnic group, and hereditary factors. Individual 'lifestyle' factors include behaviours such as smoking, alcohol use, and physical activity. Social and community networks include family and wider social circles. Living and working conditions include access and opportunities in relation to jobs, housing, education, welfare services etc. General socioeconomic, cultural and environmental conditions include factors such as taxation, availability of work etc.

List of 'protected characteristics' defined in the Equality Act (2010):

- age
- disability
- gender reassignment
- marriage and civil partnership
- pregnancy and maternity
- race
- religion or belief
- sex
- sexual orientation

## Focus on ethnicity

This report focuses on ethnicity. Over the last two decades, England has become more ethnically diverse. The proportion of people in England and Wales who identified their ethnic group as White in the decennial census, fell from 94.1% in 1991 to 86.0% in 2011, and correspondingly the proportion identifying as one of the Minority Ethnic Groups has increased.<sup>v</sup>

Data were available to enable analysis by ethnic group for 12 of the 18 indicators presented. The report highlights some key gaps in data by ethnic group. In particular, that ethnicity is not available at death registration. It is, therefore, not possible to calculate life expectancy estimates or mortality rates based solely on death registration data. For four mortality indicators, analysis by country of birth has been included. While country of birth was used as a proxy for ethnic group in the past, it can no longer be used in this way as many of those with a non-white ethnic group were born in this country. However, country of birth is an important dimension of inequality in its own right and the analysis highlights significant health inequalities.

Key findings are summarised for each broad ethnic group below. The classifications of the ethnic groups varies across the indicators examined, however, with some data available for more detailed ethnic groups (for example, excess weight in children is available for 17 ethnic groups), but others only available for broad ethnic groups, such as White or Asian. This may present difficulties in interpreting the data, as the broad ethnic groupings may mask considerable inequality within them.

A chart summarising the findings by ethnic group can also be found in Appendix 3.

## Key findings for ethnic groups

### White

(For some indicators data are reported for the overall White group, while for others data are broken down into White British and White Other. The latter can also include further sub-groups including Gypsy or Irish Traveller, White Irish and Any Other White Background).

Inequalities data for the White ethnic groups are available for 12 of the 18 indicators (half of these are for the White group as a whole and half can be broken down for the White British and White Other groups) and these show that health outcomes are variable. White children are generally more likely to get a good start in life, with both

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<sup>v</sup> ONS. 2012. Ethnicity and National Identity in England and Wales: 2011: [www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11](http://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11)



White British and White Other groups having better levels of infant mortality and low birthweight than other ethnic groups. Children in the overall White group also have lower than average levels of dental decay and are less likely to live in low income families. At ages 10-11, White British children have a significantly lower than average level of excess weight, but White Other children have a significantly higher level.

Inequalities data for the Gypsy/Roma ethnic group are only available for one indicator.<sup>vi</sup> Children in the Gypsy/Roma group were more than twice as likely to not be ready for school compared with the average for all ethnic groups. Readiness for school was also significantly worse for Travellers of Irish Heritage and children from Any Other White Background. White British children, meanwhile, do better than average on readiness for school.

Compared with other ethnic groups, people in the overall White group have lower incidence of TB and are more likely to be employed. But women are more likely to smoke than most other ethnic groups. White British men and women account for a higher percentage of hospital admissions related to alcohol, as do men from Any Other White Background, and men and women from the White Irish group. Levels of self-harm, suicidal thoughts and suicide attempts for the White British are higher than other ethnic groups, and the White Other group are second highest for these indicators.

## **Black**

(For some indicators recording of the Black group is not further sub-divided, while for others sub-groups are recorded, typically as Black African, Black Caribbean and Black Other).

Inequalities data for Black ethnic groups are available for 12 of the 18 indicators, and these show that children in these groups generally have poorer health outcomes than the average for England. The exception is dental decay, for which five year olds in the overall Black group have the lowest level of all ethnic groups. But for children in the Black ethnic groups, excess weight is more common than in all other groups, and levels of infant mortality and children in low income families are higher than average. Children in the Black Caribbean group also have significantly worse levels of low birth weight and readiness for school (but Black African children are similar to the total population for these).

Young people in the Black Caribbean ethnic group are more likely to not be in employment, education or training (NEET) than the general population and adults in the

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<sup>vi</sup> In the 2011 Census, respondents could tick a box to select the ethnic group 'Gypsy or Irish Traveller', which was a subset of the White ethnic category. There was no tick box for 'Roma' but respondents could write this in. Data for school readiness are reported for ethnic groups, which do not match exactly with the 2011 Census classification. Figures are, instead, reported for a combined 'Gypsy/Roma' category and a separate 'Traveller of Irish Heritage' category. If reported alone, the Roma group would normally be categorised with 'Other' ethnic groups, rather than the White group.

overall Black group have a significantly worse level of employment. Of all the ethnic groups reported, Black adults also have the highest level of low satisfaction with life. But adults in the Black ethnic group are significantly less likely to smoke and account for a lower percentage of alcohol-related hospital admissions.

### **Chinese**

Inequalities data for people of Chinese ethnicity are separately identified for seven of the 18 indicators, and people in this group are doing better than the England average for most of these. The notable exception is for child tooth decay, for which over half of five year olds have obvious dental decay, double the England average. A quarter of Chinese children also live in low income families. But Chinese children are significantly more likely to have low levels of childhood excess weight, and adults account for a lower percentage of alcohol-related hospital admissions.

### **Asian**

(For some indicators data are reported for the overall Asian group, while for others sub-groups are reported, including Indian, Bangladeshi, Pakistani and Asian Other).

Inequalities for the Asian ethnic groups are available for 12 of 18 indicators and these show that health outcomes are generally poor, particularly for people in the Bangladeshi and Pakistani groups. From the ethnic groups reported, infant mortality is highest for the Pakistani group and low birthweight is highest for the Bangladeshi, Indian, and Pakistani groups, but their levels of low birthweight have been improving in recent years. At ages 4-5, Indian children are the ethnic group with the lowest level of excess weight, while Pakistani children are also lower than average and Bangladeshi children are similar to the total population. But at ages 10 to 11, children in all three groups are significantly more likely to have excess weight than the England average.

The percentage of children living in low-income families is highest for the Bangladeshi and Pakistani groups, and is above average for Indian children. Children in the Indian group have the best level of readiness for school, but children in the Bangladeshi and Pakistani groups are doing worse than average.

Young people in the Bangladeshi and Pakistani ethnic group are more likely to become NEET, and these groups also have the lowest level of adult employment. However, the Asian group as a whole has the smallest percentages both of people reporting low satisfaction with life and of suicide attempts and suicidal thoughts. TB incidence is significantly worse for people in the Indian, Bangladeshi and Pakistani groups for both those born in and outside of the UK. But people in the Asian group are less likely to smoke and, except for Indian men, account for a lower percentage of hospital admissions related to alcohol.

## **Mixed**

(Includes groups identified as White and Black African, White and Black Caribbean, White and Asian, Mixed Other).

Inequalities for Mixed ethnic groups are available for 10 of 18 indicators, but the type of ethnic mix is specified for only three of these 10. The Mixed groups have variable outcomes, which may be affected by the particular mix of ethnicities. For the three indicators where ethnic mix is specified, those in the White and Asian group generally have better outcomes, with the lowest level of excess weight at ages 10 to 11, and a high level of readiness for school. Children in the White and Black Caribbean, and White and Black African groups have high levels of excess weight. The overall Mixed group has the highest level of smoking of all the ethnic groups reported. The level of employment is also worse than average, but children are less likely to live in low income families.

## **Other**

The constitution of the 'Other' group varies between indicators, depending on how they are defined. The group will generally include those whose ethnic identity does not fit in one of the other main groups, eg people in the Arab ethnic group. However, this group may include a wide range of other ethnicities, eg people from the Chinese ethnic group if they are not recorded separately. Inequalities for the 'Other' ethnic group are available for 11 of the 18 indicators.

Health outcomes for people who are identified as being in this group are generally worse than the average for England, particularly for children. They have significantly worse levels of low birth weight, dental decay, and childhood excess weight. Children in this ethnic group are also more likely to live in low income families and not be ready for school at age five. For adults, employment is significantly worse than the national average.

## **Key findings for country of birth groups**

Analysis of mortality by country of birth has been undertaken for all causes, cancer, cardiovascular disease and suicide, and shows marked variation in mortality rates between countries and groups of countries.

People born in Scotland, Ireland and Northern Ireland have significantly worse than average mortality rates at all ages and premature deaths under age 75. They are also worse for premature deaths from cancer and cardiovascular disease.

Males born in the EU Accession countries, including Poland, have significantly worse premature mortality from all causes, but the same is not true for females from these countries, who are doing significantly better than average. In particular, males born in

the EU Accession countries have the highest levels of premature mortality from cardiovascular disease.

Cardiovascular disease mortality is also significantly high for people born in Central and Western Africa and Southern Asia (particularly Bangladesh and Pakistan). Premature mortality from cancer is significantly high for males (but not females) born in the Caribbean, and females (but not males) born in Central and Western Africa. Unlike circulatory disease, people born in Southern Asia have significantly fewer premature deaths from cancer.

Male suicide rates are highest for those born in the EU Accession countries, including Poland. Suicide is also significantly high for people born in Scotland and Ireland and males born in Germany.

It should be noted that country of birth is no longer an appropriate proxy for ethnic group, as people born in England belong to all ethnic groups and the ethnic diversity of the country of origin is not taken into account. For example, data from the 2011 Census show that of those born in South and Eastern Africa, 36% report their ethnic group as Black, 30% White, and 27% Asian. Table A3, showing the relationship between country of birth and ethnic group in more detail, can be found in Appendix 2.

A summary table of mortality by country of birth can be found in Table A4 (Appendix 3).

### Key findings for other dimensions of inequality

There was a long term trend of improvement in life expectancy and mortality rates from cancer, CVD, and in those aged less than one in England as a whole since 2001-03.<sup>vii</sup> However, stark inequalities remain, particularly inequalities by deprivation:

- a nine year gap in male life expectancy between the most and least deprived areas, and a seven year gap for females
- almost 20 years difference in healthy life expectancy between the most and least deprived areas for both sexes
- in the most deprived areas, the premature mortality rate from cancer is twice as high as the rate in the least deprived areas
- the premature mortality rate from cardiovascular disease in the most deprived tenth of areas is almost 3.5 times higher than in the least deprived tenth of areas
- the infant mortality rate in the most deprived tenth of areas is almost double that in the least deprived tenth of areas

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The report shows mixed progress on reducing inequalities by deprivation for these indicators:

- for male life expectancy, male and female healthy life expectancy, and premature cancer mortality there has been little change in inequality between communities in recent years
- for female life expectancy, there has been a small widening of inequality between the most and least deprived areas between 2010-12 and 2013-15

There has been positive improvement in some indicators in recent years for key health outcomes, which form some of PHE's priorities. For example, falling smoking prevalence, TB incidence and percentage of people reporting low life satisfaction. Most recent data show wide inequalities across all indicators, with worse outcomes in the more deprived areas:

- smoking prevalence in the routine and manual group is almost 10 percentage points higher than England as a whole
- alcohol related hospital admissions are twice as high in the most deprived areas compared with the least deprived areas
- incidence of TB amongst those born outside of the UK is 15 times higher than amongst those born within the UK
- in the most deprived areas, the suicide rate is double that of the least deprived areas
- recorded rates of low life satisfaction are significantly higher amongst the unemployed and economically inactive

For most indicators in this section, there has been no clear trend in inequalities in recent years.

There has been improvement in some indicators of social determinants of health in England as a whole. Children not ready for school, and 16-18 year olds not in education, employment or training have both fallen in recent years. However, there has been no change in the employment gap between those with a long-term condition and the population as a whole, or the rate of homeless people assessed not to be in priority need. The proportion of children in low income families, which had been falling in recent years, increased in 2014. Most recent data show that wide inequalities remain apparent:

- children with free school meals (a proxy measure for deprivation) are less likely to be ready for school than children without free school meals
- young people who live in most deprived areas are more likely not to be in employment, education or training than those in the least deprived areas

There is some evidence of progress towards reducing inequality in these indicators. For example:

- the gap in school readiness between those with free school meals and those without has narrowed since 2012/13

## Introduction

Public Health England (PHE) has a statutory duty, under the Health and Social Care Act 2012, to have due regard to the need to reduce health inequalities. Health inequalities are differences in health between people or groups of people that may be considered unfair. Reducing inequalities should mean that everyone has the same opportunities to lead a healthy life, no matter where they live or who they are.

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- support health and social care organisations to understand inequalities in health outcomes for different populations in England. This will support targeted preventative and early intervention work to address health inequalities
- address some gaps in existing data and analysis relating to health outcomes for specific population groups, and help to identify further gaps

### Dimensions of inequality

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In 2014/15 in England as a whole, 33% of 10 to 11 year olds had excess weight. But 43% of Bangladeshi children had excess weight and 39% of children in the most deprived areas had excess weight. As Bangladeshi children are more likely to live in deprived areas, it is difficult to determine the increased risk associated with deprivation, the increased risk associated with ethnicity, and the increased risk associated with a combination of ethnicity and deprivation. It is beyond the scope of this report to analyse the extent or impact of any interaction between different dimensions of inequality.

It is also important to note that for many indicators, data for some dimensions of inequality are not routinely available. In particular, the availability of data for sexual

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<sup>ii</sup> A table showing the inequality dimensions included in the Public Health Outcomes Framework for each indicator can be found here: [www.phoutcomes.info/further-information](http://www.phoutcomes.info/further-information)

<sup>iii</sup> Most dimensions are reported separately, but the report does contain new analysis of smoking prevalence by ethnic group and religious group, broken down by sex.

orientation and disability is poor. As a consequence these have largely not been covered in this report, although the data that are available indicate that wide inequalities exist.

## Focus on ethnicity

This report focuses on ethnicity. Over the last two decades, England has become more ethnically diverse. The proportion of people in England and Wales who identified their ethnic group as White in the decennial census, fell from 94.1% in 1991 to 86.0% in 2011, and correspondingly the proportion identifying as one of the Minority Ethnic Groups has increased.<sup>iv</sup>

Data were available to enable analysis by ethnic group for 12 of the 18 indicators presented. The report highlights some key gaps in data by ethnic group. In particular, that ethnicity is not available at death registration. It is, therefore, not possible to calculate life expectancy estimates or mortality rates based solely on death registration data. For four mortality indicators, analysis by country of birth has been included. While country of birth was used as a proxy for ethnic group in the past, it can no longer be used in this way as many of those with a non-white ethnic group were born in this country. However, country of birth is an important dimension of inequality in its own right and the analysis highlights significant health inequalities.

Key findings are summarised for each broad ethnic group below. The classifications of the ethnic groups varies across the indicators examined, however, with some data available for more detailed ethnic groups (for example, excess weight in children is available for 17 ethnic groups), but others only available for broad ethnic groups, such as White or Asian. This may present difficulties in interpreting the data, as the broad ethnic groupings may mask considerable inequality within them.

A chart summarising the findings by ethnic group can also be found in Appendix 3.

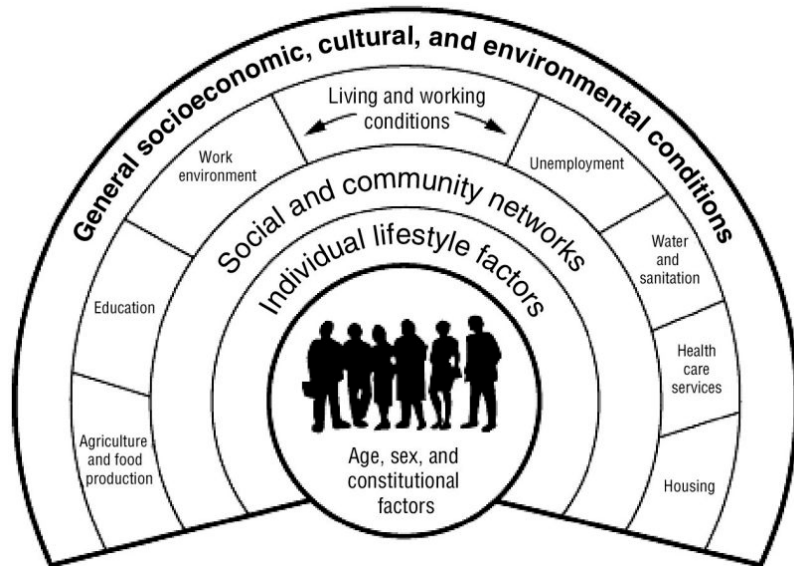
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<sup>iv</sup> ONS. 2012. Ethnicity and National Identity in England and Wales, 2011: [www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11](http://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11)



### Box 1: Determinants of health and dimensions of inequality

Figure 1: The Dahlgren and Whitehead model of health determinants



Source: Dahlgren and Whitehead (1991).

Personal characteristics occupy the core of the model, and include sex, age, ethnic group, and hereditary factors. Individual 'lifestyle' factors include behaviours such as smoking, alcohol use, and physical activity. Social and community networks include family and wider social circles. Living and working conditions include access and opportunities in relation to jobs, housing, education, welfare services etc. General socioeconomic, cultural and environmental conditions include factors such as disposable income, taxation, availability of work etc.

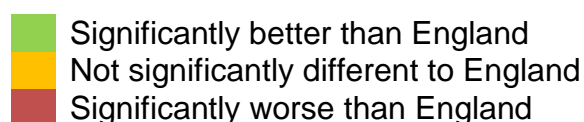
List of 'protected characteristics' defined in the Equality Act (2010)

- age
- disability
- gender reassignment
- marriage and civil partnership
- pregnancy and maternity
- race
- religion or belief
- sex
- sexual orientation

## Box 2: Format of the report

The report contains a chapter for each of the Health Equity Dashboard indicators. Each chapter contains a definition of the indicator and rationale for its inclusion in the dashboard. A picture of progress on each indicator is provided at England level. The Health Equity Dashboard monitors progress since the inception of PHE in 2013, but this report includes longer-term trend data, where available. No sub-national geographies are included in this report.

Bar charts show indicator values for each of the population groups within the dimension. Where possible, bars have been colour coded to denote the difference between each population group and the England average.



For each inequality dimension, a summary measure has been calculated to report on the extent of inequality. A number of methods have been used to calculate the summary measure. The method selected for each section depends on the availability of data and the nature of the dimension being measured. [Appendix 2](#) describes the methodologies in more detail.

Data for inequality dimensions have been presented at the most granular level possible, but there is variation in data availability and robustness between indicators. For example, for some indicators it is possible to present data for Indian, Pakistani, Bangladeshi and other Asian ethnic groups separately, whereas other indicators may present a single 'Asian' ethnic group. It should be noted that data presented for broad groups might mask inequalities within them.

The focus of this report is the most recent data for each indicator. However, where trends have been included in the dashboard, they are presented in this report.

A data pack, containing the data referred to in this report is also available.

# Indicator 1 – Life expectancy at birth

## Definition

The average number of years that would be lived by babies born in a given time period if mortality levels at each age remain constant in future.<sup>1</sup>

Inequalities are examined by sex, deprivation and country of birth. The indicators used to measure inequality are:

- absolute difference (sex)
- slope index of inequality (deprivation)
- variation in mortality from England - Standardised Mortality Ratio (country of birth)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

## Rationale for inclusion

This indicator is an extremely important summary measure of mortality, providing information on overall trends in population health, setting the context in which local authorities can identify the drivers of life expectancy.<sup>1</sup>

In England in 2013-15, life expectancy at birth was 79.5 years for men and 83.1 years for women.<sup>1</sup> However, life expectancy is closely associated with levels of deprivation, and this leads to wide inequalities between areas within England. Reducing inequality in life expectancy between communities is one of the overarching aims of the Public Health Outcomes Framework.

## Inequalities

### Sex

- life expectancy at birth is significantly higher in females than males. In 2013-15, female life expectancy was 3.6 years higher than male life expectancy

### Deprivation

- there is a strong relationship between life expectancy and deprivation, with the most deprived areas in England experiencing lower life expectancy than the least deprived

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<sup>1</sup> Life expectancy figures calculated using three-year pooled deaths and population and quinary life tables.

- this inequality can be summarised by examining life expectancy across the population of England divided into ten groups defined according to their level of deprivation.<sup>ii</sup> This shows that in 2013-15, men living in the most deprived areas lived 9.2 years less than men in the least deprived areas, and women 7.1 years less (Figures 1a and 1b)
- life expectancy has increased since 2010-12 across all levels of deprivation. However, there has been little change in inequality between communities for males. For females, there has been a statistically significant widening of inequality between 2010-12 and 2013-15, from 6.8 to 7.1 years (Figure 1c)

## Country of birth

- rather than life expectancy, the country of birth analysis is based on Standardised Mortality Ratios for deaths from all causes, calculated for 2011-13 using 2011 Census populations by country of birth<sup>iii</sup>
- there is considerable variation in mortality from all causes by country of birth (Figures 1d and 1e)
- for both sexes, those born in Ireland, Scotland and Northern Ireland had statistically significantly higher all age mortality rates than England as a whole.<sup>iv</sup> Females born in Wales also had a significantly higher all age mortality rate than England
- mortality rates amongst those aged under 75 show a similar pattern to that for all ages, with mortality amongst those born in Ireland, Scotland and Northern Ireland being significantly higher than England as a whole (Figures 1f and 1g)
- there were however some notable differences between the all age mortality rates and the rates for those under 75. Amongst males, for example, the all age mortality rate was not significantly different from England as a whole for those born in the EU accession countries (2011).<sup>v</sup> However, premature mortality was significantly high amongst those born in the EU accession countries, with a standardised mortality ratio of 134 for Polish men
- among females, the premature mortality rate was slightly, although statistically significantly, higher for those born in England, compared with the mortality rate amongst the England population as a whole. This was not the case for all ages where there was no significant difference

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<sup>ii</sup> The resulting measure, the slope index of inequality, represents the difference in life expectancy between the most and least deprived areas. See Appendix 2 for further details of this summary measure.

<sup>iii</sup> Further details of the methodology can be found in Appendix 2.

<sup>iv</sup> The England overall value refers to all deaths from all causes in England regardless of country of birth.

<sup>v</sup> Includes countries joining the EU between 2001 and 2011. See Appendix 2 for a list of countries included in this group.

## Charts of life expectancy at birth

Wide inequalities in life expectancy exist between the most and least deprived areas of England, with a difference of 9.2 years for men and 7.1 years for women.

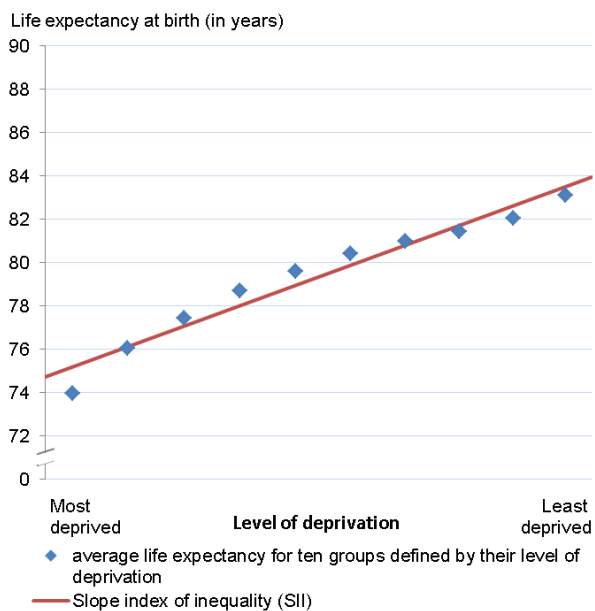


Figure 1a: Males, England, 2013-15.

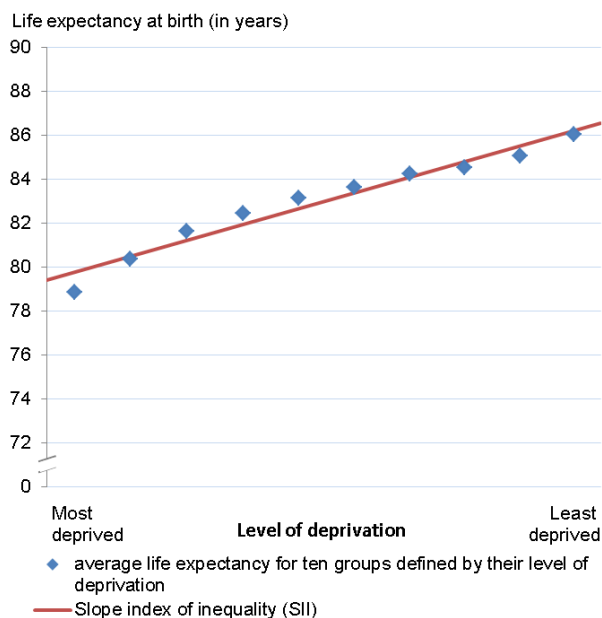


Figure 1b: Females, England, 2013-15.

Source: PHE analysis of ONS data.

There has been little change in inequality in life expectancy over time, and for males there has been no significant change. However, for females, there has been a small but statistically significant widening of inequality.



Figure 1c: England, 2010-12 to 2013-15.

Source: PHE analysis of ONS data.

### Charts of all cause mortality by country of birth

Wide inequalities in all cause mortality by country of birth exist, with males and females born in Ireland, Scotland and Northern Ireland, and females born in Wales, having significantly higher mortality rates for all ages.

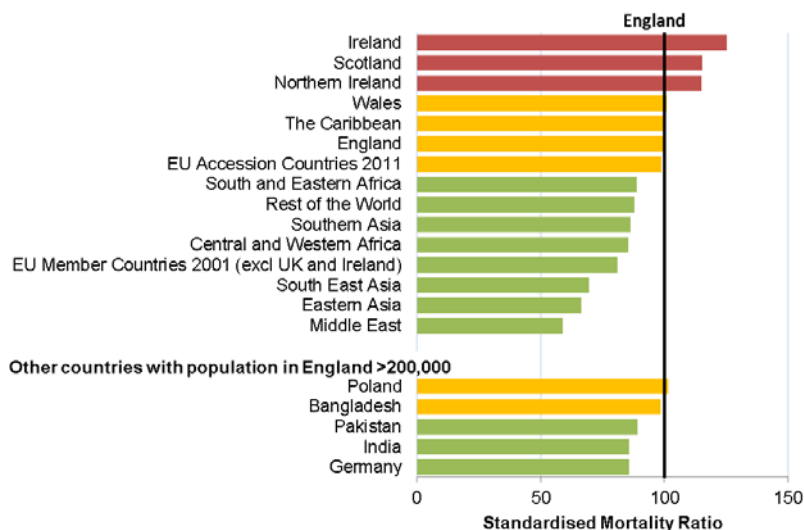


Figure 1d: Deaths to England residents in England, all ages, all causes, males, 2011-13.

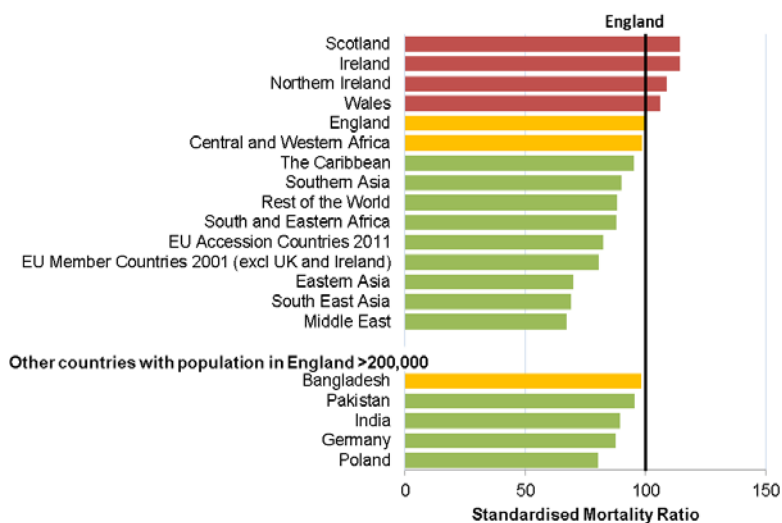


Figure 1e: Deaths to England residents, all ages, all causes, females, 2011-13.

Source: PHE analysis of ONS death registration data and 2011 Census population data.

Premature mortality rates (those aged under 75), show a similar pattern to that of all causes, but with some notable differences. Mortality rates for men born in EU accession countries, including Poland, are significantly higher than England as a whole, although this is not the case for women.

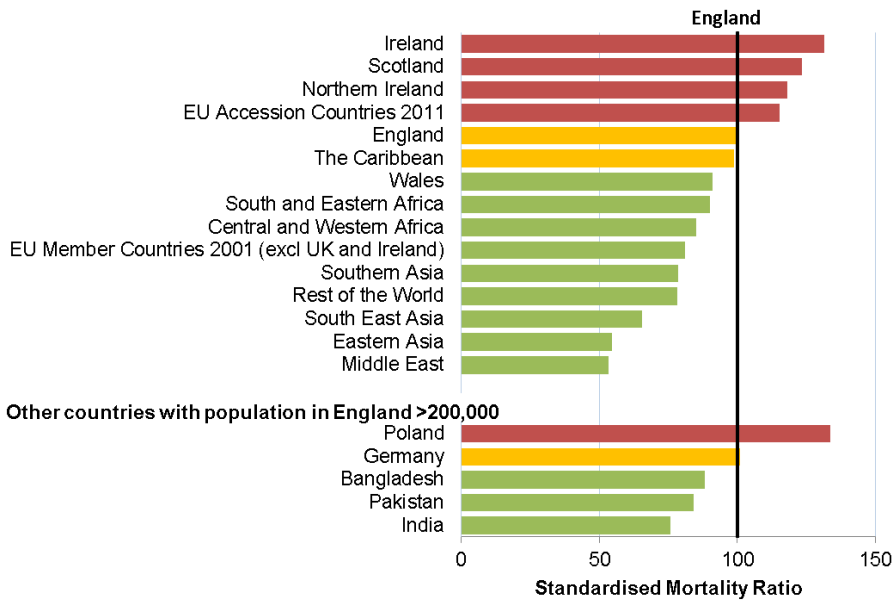


Figure 1f: Deaths to England residents in England, ages under 75, all causes, males, 2011-13.

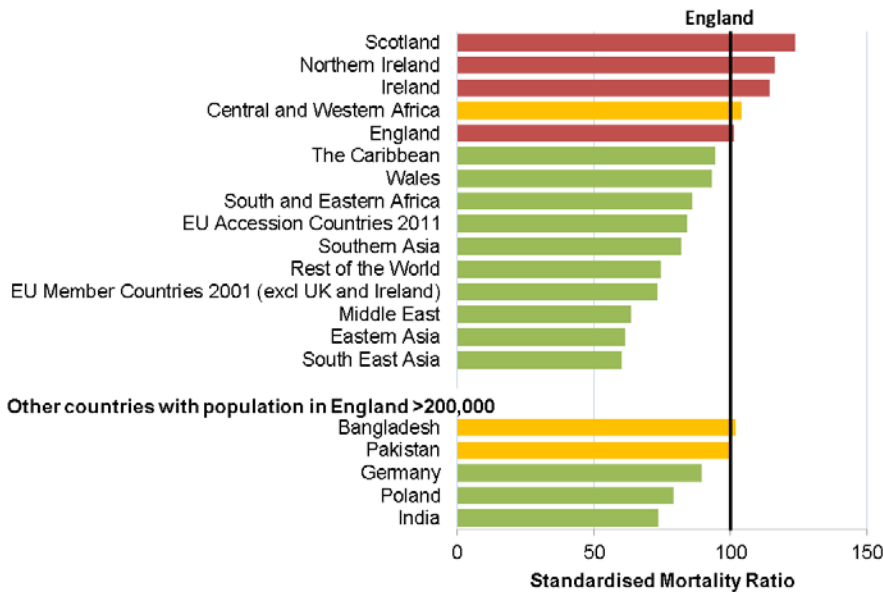


Figure 1g: Deaths to England residents, ages under 75, all causes, females, 2011-13.

Source: PHE analysis of ONS death registration data and 2011 Census population data.



## References

1. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].

## Indicator 2 – Healthy life expectancy at birth

### Definition

An estimate of the average number of years babies born in a given time period would live in a state of 'good' general health if mortality levels at each age, and the level of good health at each age, remain constant in the future. Inequalities are examined by sex and deprivation. The indicators used to measure inequality are:

- absolute and relative difference (sex)
- slope index of inequality (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Healthy life expectancy is a key summary measure of population health as it describes the average length of time an individual is estimated to spend in good health. With an increasingly ageing population, there is a need to capture quality as well as quantity of remaining years lived.<sup>1</sup>

In 2013-15, healthy life expectancy was 63.4 years for males, and 64.1 years for females.<sup>2</sup> However, healthy life expectancy is closely associated with levels of deprivation which leads to wide variations between communities. Increasing healthy life expectancy and reducing inequality in healthy life expectancy between communities are the overarching aims of the Public Health Outcomes Framework.

### Inequalities

#### Sex

- healthy life expectancy at birth is statistically significantly higher in females than males. In 2013-15, female healthy life expectancy was 0.7 years higher than males
- the gender gap for healthy life expectancy is smaller than that for life expectancy

#### Deprivation

- a strong relationship exists between healthy life expectancy and deprivation. This inequality can be summarised by examining healthy life expectancy across the

population of England divided into ten groups defined according to their level of deprivation.<sup>i</sup> This shows that people living in the least deprived areas live around 20 years longer in good health than those in the most deprived areas (Figures 2a and 2b). There has been no statistically significant change since the start of the trend data in 2011-13 (Figure 2c)

## Charts of healthy life expectancy at birth

Inequalities in healthy life expectancy between the most and least deprived areas are wider than inequalities in life expectancy, with a difference of around 20 years for both men and women.

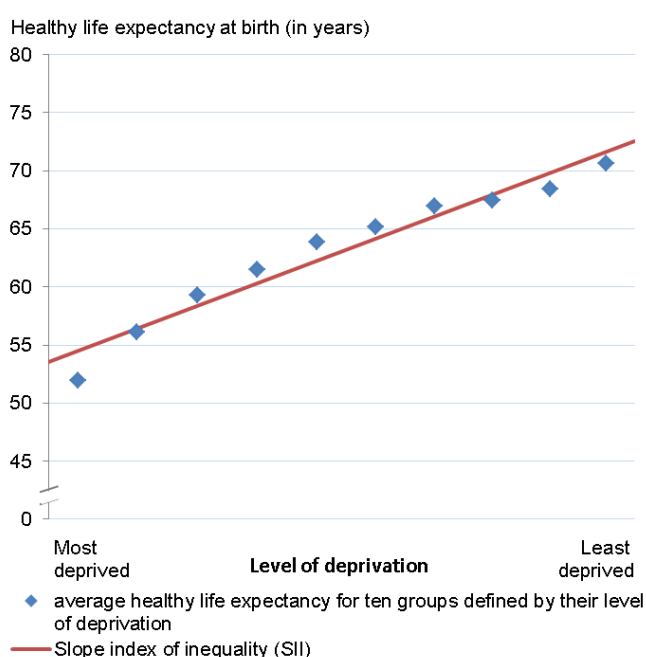


Figure 2a: Males, England, 2013-15.

Source: PHE analysis of ONS data.

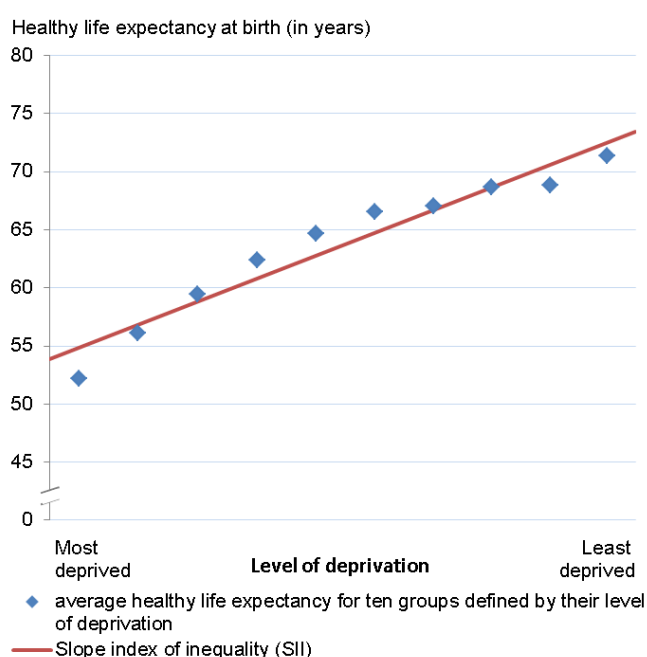


Figure 2b: Females, England, 2013-15.

<sup>i</sup> The resulting measure, the slope index of inequality, represents the difference in healthy life expectancy between the most and least deprived areas. See Appendix 2 for further details of this summary measure.

There has been no statistically significant change in inequalities in healthy life expectancy over time for men or women.



Figure 2c: England, 2011-13 to 2013-15.

Source: ONS.

## References

1. Government Office for Science. 2015. Trends in life expectancy and healthy life expectancy. Available from: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/464275/gs-15-13-future-ageing-trends-life-expectancy-er12.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/464275/gs-15-13-future-ageing-trends-life-expectancy-er12.pdf) [Accessed 21 June 2017].
2. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].

## Indicator 3 – Cardiovascular disease mortality under 75 years

### Definition

Age-standardised rate of mortality from all cardiovascular diseases (including heart disease and stroke) in persons less than 75 years of age.

Inequalities are examined by sex, country of birth, and deprivation. The indicators used to measure inequality are:

- absolute difference (sex)
- variation from England - Standardised Mortality Ratio (country of birth)
- slope index of inequality and relative index of inequality (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Cardiovascular disease is one of the major causes of death in the under 75s in England. Rates of cardiovascular disease mortality have shown a large decrease over recent years, with the mortality rate per 100,000 almost halving since 2001-03 to 75.7 deaths per 100,000 in 2012-14 (Figure 3a).

### Inequalities

#### Sex

- there are large differences in premature mortality rates from cardiovascular disease between men and women. In 2012-14, there were 106.2 deaths per 100,000 population amongst males, more than double the rate of females (46.9 deaths per 100,000 population) (Figure 3b)

#### Country of birth<sup>i</sup>

- there is considerable variation in cardiovascular disease mortality by country of birth (Figures 3c and 3d)

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<sup>i</sup> Inequalities by ethnic group have not been calculated. Since ethnic group is not available on death registration records it is not possible to calculate mortality rates based solely on death registration data.

- in 2011-13, the level of mortality amongst those aged under 75 was statistically significantly higher than England<sup>ii</sup> amongst men and women born in Central and West Africa, Northern Ireland, Scotland, and Southern Asia. Mortality rates in Bangladesh and Pakistan, both countries within the Southern Asia group were significantly high<sup>iii</sup>
- men and women born in Eastern Asia, the Middle East, South East Asia, EU member countries (2001), Wales, the rest of the world group, and those born in England, had statistically significantly lower premature mortality rates from cardiovascular disease than England as a whole.<sup>ii</sup> It should be noted that although the difference for England is statistically significant, it is very small
- there were some notable differences between males and females. The cardiovascular disease premature mortality rate for males born in EU accession countries (2011) was statistically significantly higher than England as a whole. However, for females born in EU accession countries there was no significant difference from England. Poland, part of the EU accession group, had a standardised mortality ratio of 172 for males, significantly higher than England as a whole. However, the rate for females born in Poland was not statistically significantly different from England. Females born in the Caribbean had a significantly high mortality rate. However, amongst males born in the Caribbean, there was no significant difference from England<sup>ii</sup>

## Deprivation

- the most deprived areas of England have the highest premature mortality rates from cardiovascular disease. There is a clear gradient, with less deprived areas having the lowest rates
- this inequality can be summarised by examining mortality rates across the population of England divided into ten groups defined according to their level of deprivation.<sup>iv</sup> This shows that there was a difference of over 100 deaths per 100,000 population between the most and least deprived areas in 2012-14<sup>v</sup> (Figure 3e)

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<sup>ii</sup> The England overall value refers to all deaths from cardiovascular disease in England regardless of country of birth.

<sup>iii</sup> Based on Standardised Mortality Ratios, calculated for 2011-13 using 2011 Census populations by country of birth. More details of the methodology used for this section can be found in Appendix 2.

<sup>iv</sup> The resulting measures, the slope index of inequality, and the relative index of inequality represent the difference in mortality rates between the most and least deprived areas. See Appendix 2 for further details of these summary measures.

<sup>v</sup> There is not a clear linear relationship between premature cardiovascular disease mortality and deprivation across all time periods. It is, therefore, difficult to measure changes in the slope index of inequality over time.

## Charts of cardiovascular disease mortality

Under age 75 mortality rates from cardiovascular disease have decreased considerably since 2001-03. However, there are wide inequalities, with the rate amongst men more than double that of women in 2012-14.



Figure 3a: Persons, England, 2001-03 to 2012-14.

Source: Public Health Outcomes Framework.

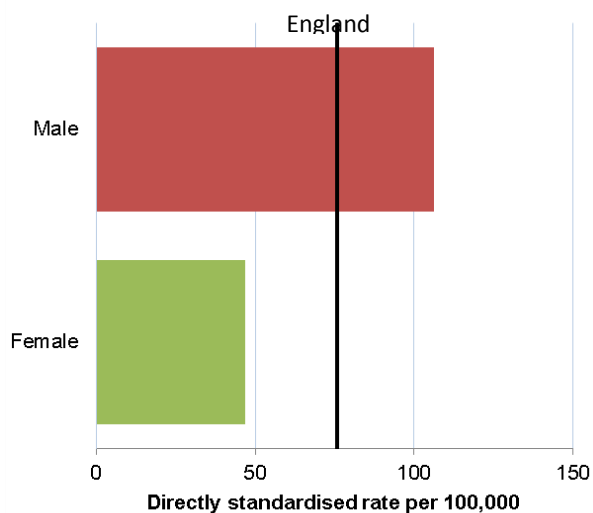


Figure 3b, England, 2012-14.

There are wide inequalities in premature cardiovascular disease mortality rates by country of birth, with the highest levels of mortality for men born in Poland, and men and women born in Bangladesh and Pakistan.

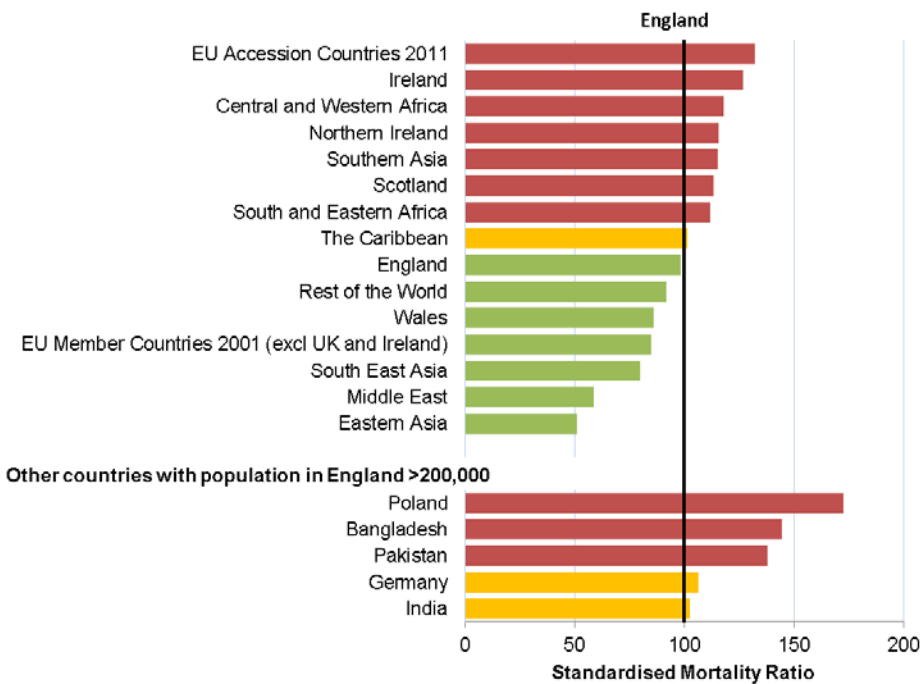


Figure 3c: Deaths to England residents, males, 2011-13.

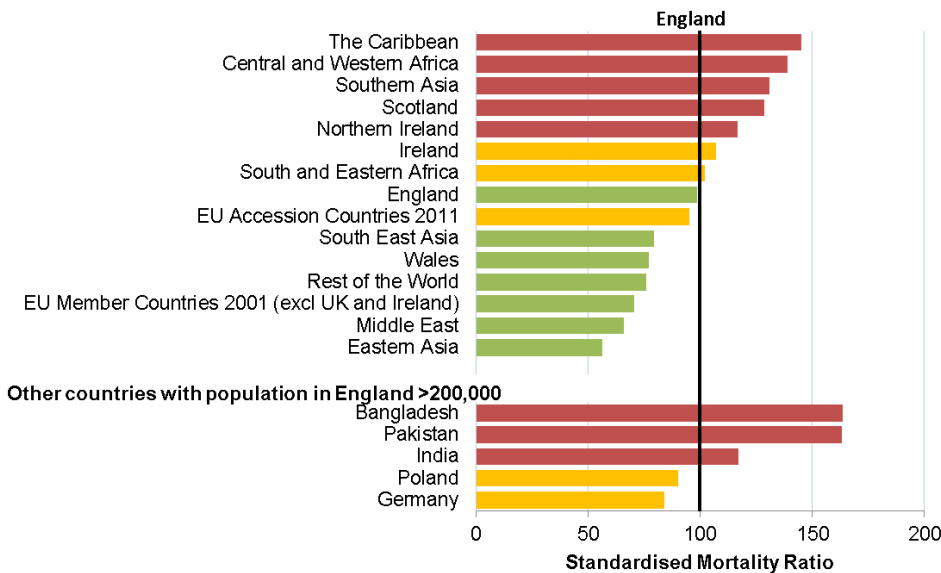


Figure 3d: Deaths to England residents, females, 2011-13.

Source: PHE analysis of ONS death registration data and 2011 Census population data.



There are inequalities by deprivation in premature mortality from cardiovascular disease. The mortality rate in the most deprived tenth of areas is almost 3.5 times higher than the rate in the least deprived tenth of areas.

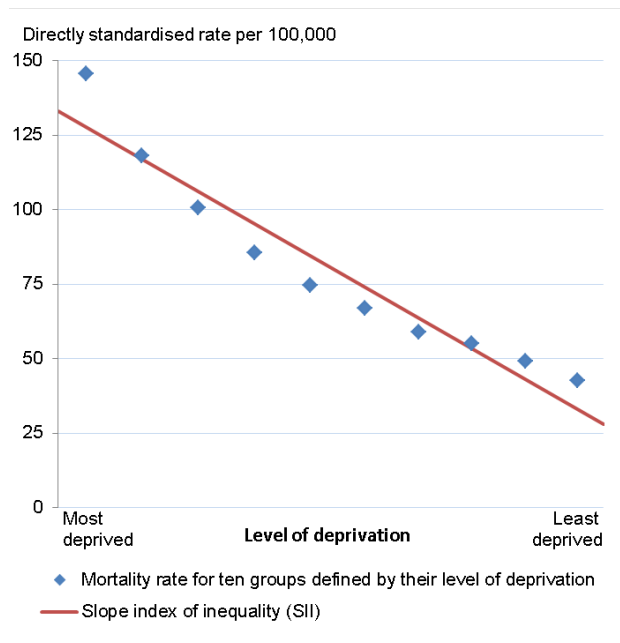


Figure 3e: Persons, England, 2012-14.

Source: PHE analysis of ONS data.

## Indicator 4 – Cancer mortality under 75 years

### Definition

Age-standardised rate of mortality from all cancers in persons less than 75 years of age.

Inequalities are examined by sex, country of birth, deprivation and ethnic group. The indicators used to measure inequality are:

- absolute difference (sex)
- variation from England - Standardised Mortality Ratio (country of birth)
- slope index of inequality and relative index of inequality (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Cancer is a major cause of death in England in under 75s.<sup>1</sup> Cancer mortality rates have declined since 2001-03 and in 2012-14 there were 141.5 deaths per 100,000 population (Figure 4a).

However, wide inequalities exist amongst different population groups. For example, there is variation in cancer incidence and survival between different socioeconomic groups. Differences in behaviours that have been found to have a negative effect upon cancer incidence and mortality also vary amongst different population groups.<sup>2</sup>

### Inequalities

#### Sex

- there are significant differences in premature cancer mortality rates between men and women. In 2012-14, there were 157.7 deaths per 100,000 population amongst males, a statistically significant gap of 31.1 deaths per 100,000 population when compared with the rate in females (126.6 deaths per 100,000 population) (Figure 12b)

## Country of birth<sup>i</sup>

- there is variation in cancer mortality by country of birth
- in 2011-13, premature cancer mortality rates amongst those born in Ireland, Northern Ireland, England and Scotland were significantly higher than mortality for England overall in both males and females.<sup>ii</sup> It should be noted that although the difference for England is statistically significant, it is very small
- males born in the Caribbean and females born in Central and Western Africa also had significantly higher cancer mortality rates than England overall (Figure 4c and 4d)
- analysis by country of birth shows that both males and females born in the Middle East, Southern Asia, South East Asia, Eastern Asia, and South and Eastern Africa had significantly lower premature mortality rates from cancer than the England overall value

## Ethnic group

- inequalities in cancer mortality have not been examined by ethnic group, as this is not recorded on death registration records. However, some data are available on stage at diagnosis,<sup>3</sup> by ethnic group
- the stage at which cancer is diagnosed can have an impact on the success of treatment, and impact on mortality rates. Data are available on diagnosis stage for breast, lung, colorectal and prostate cancer by ethnic group,<sup>4</sup> showing variation between the percentage of cases diagnosed at a late stage (stage 3 or 4). For example, for breast cancer, Black women were more likely to be diagnosed at late stage compared with White women.<sup>3</sup> Those in the Black ethnic group were more likely to be diagnosed with colorectal and lung cancer at late stage compared with other ethnic groups. Those in the Asian and Chinese, and White ethnic groups had the highest proportions of late stage diagnosis for prostate cancer<sup>iii</sup>

## Deprivation

- the most deprived areas of England have the highest premature mortality rates from cancer. There is a clear gradient, with less deprived areas having the lowest rates
- This inequality can be summarised by examining mortality rates across the population of England divided into ten groups defined according to their level of

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<sup>i</sup> Inequalities by ethnic group have not been calculated. Since ethnic group is not available on death registration records it is not possible to calculate mortality rates based solely on death registration data.

<sup>ii</sup> The England overall value refers to all deaths from cancer in England regardless of country of birth.

<sup>iii</sup> Data are presented for broad ethnic groups, which may mask considerable inequality within the group.

deprivation.<sup>iv</sup> This shows that there was a difference of 104.1 deaths per 100,000 population between the most and least deprived areas in 2012-14. People in the most deprived areas were more than twice as likely to die prematurely from cancer than those in the least deprived areas (Figure 4e)

- Relative inequality in cancer mortality widened between 2002-04 and 2012-14, although there is no clear trend in absolute inequality (Figure 4f)

### Charts of cancer mortality under 75 years

Premature mortality rates from cancer have declined in each successive time period since 2001-03. However, wide inequalities by sex remain.

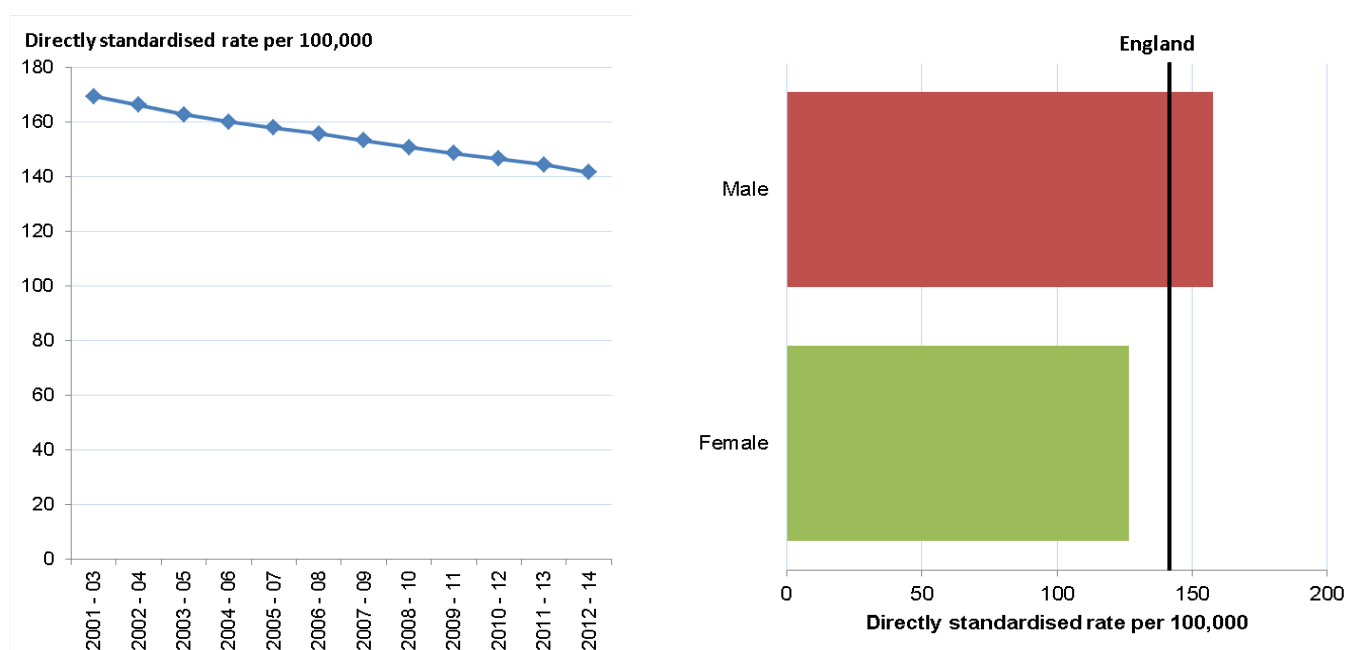


Figure 4a: Persons, England, 2001-03 to 2012-14.

Source: Public Health Outcomes Framework.

Figure 4b, England, 2012-14.

<sup>iv</sup> The resulting measures, the slope index of inequality, and the relative index of inequality, represent the difference in mortality rates between the most and least deprived areas. See Appendix 2 for further details of these summary measures.

There are wide inequalities in premature cancer mortality rates by country of birth, with the highest levels of mortality for men born in Ireland and Scotland, and for women born in Northern Ireland and Scotland.

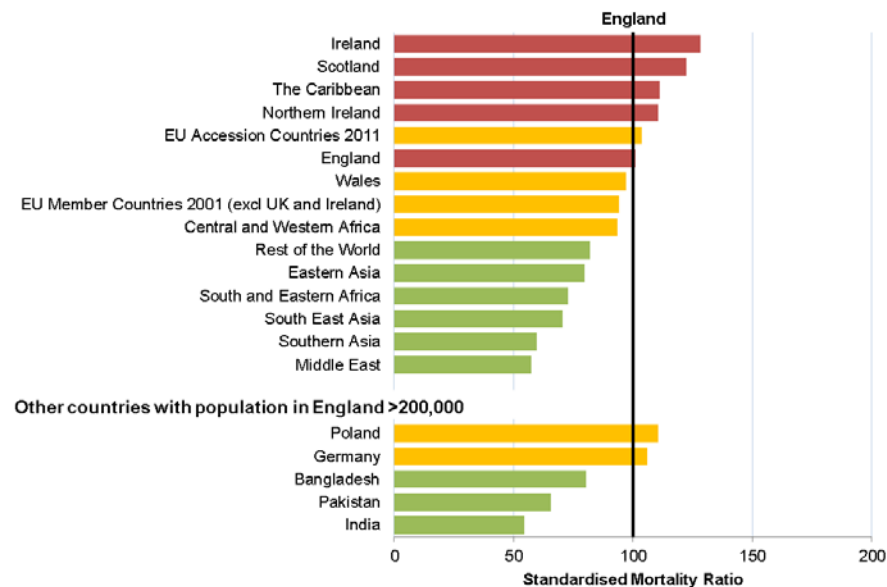


Figure 4c: Deaths to England residents, males, less than 75 years, 2011-13.

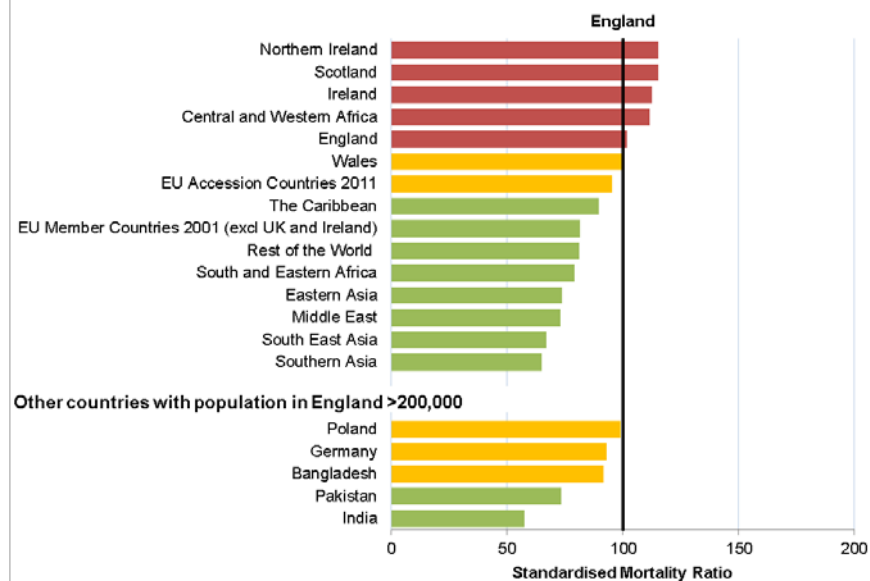


Figure 4d: Deaths to England residents, females, less than 75 years, 2011-13.

Source: PHE analysis of ONS death registration data and 2011 Census population data.

People living in the most deprived areas of England are more than twice as likely to die prematurely from cancer compared with those in the least deprived areas, and this relative inequality has gradually widened over time.

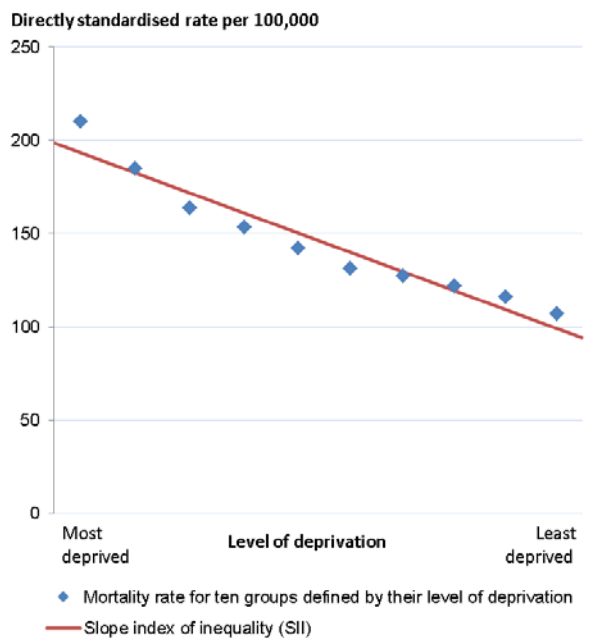


Figure 4e: Persons, England, 2012-14.

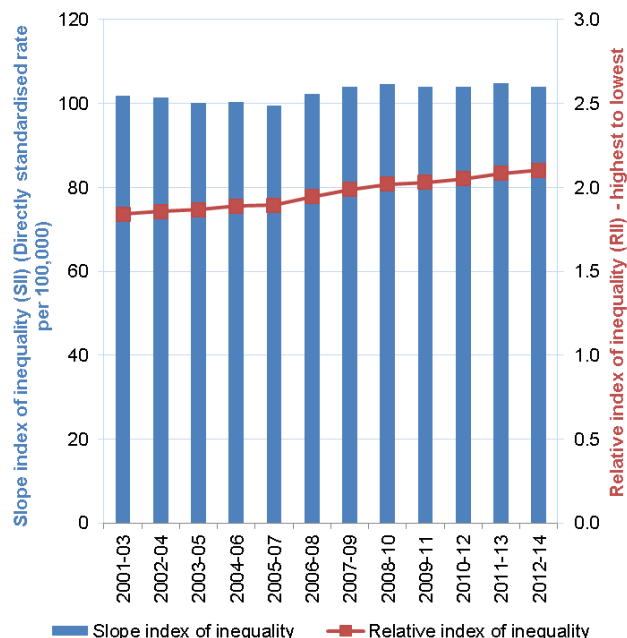


Figure 4f: Persons, England 2001-03 to 2012-14.

Source: PHE analysis of ONS data.

## References

1. Public Health England. 2014. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
2. Cancer Research UK. Not dated. Cancer and Health Inequalities. Available from: [www.cancerresearchuk.org/prod\\_consump/groups/cr\\_common/@nre/@pol/documents/generalcontent/crukmig\\_1000ast-3344.pdf](http://www.cancerresearchuk.org/prod_consump/groups/cr_common/@nre/@pol/documents/generalcontent/crukmig_1000ast-3344.pdf) [Accessed 21 June 2017].
3. Public Health England. 2016. National cancer registration and analysis service data briefing: Ethnicity and stage at diagnosis. Available from: [www.ncin.org.uk/view?rid=3286](http://www.ncin.org.uk/view?rid=3286) [Accessed 21 June 2017].
4. Public Health England. 2015. Routes to diagnosis by stage 2012-2013 workbook. Available from: [www.ncin.org.uk/view?rid=3071](http://www.ncin.org.uk/view?rid=3071) [Accessed 21 June 2017].

## Indicator 5 – Infant mortality

### Definition

Rate of deaths in infants aged under one year per 1,000 live births.

Inequalities are examined by ethnic group and deprivation. The indicators used to measure inequality are:

- mean deviation (ethnic group)
- slope index of inequality and relative index of inequality (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Infant mortality is an indicator of the general health of the entire population. It reflects 'upstream' determinants of population health such as economic, social and environmental conditions.

Between 2001-03 and 2012-14, infant mortality rates fell from 5.4 deaths per 1,000 live births to 4.0 deaths per 1,000 live births<sup>i</sup> (Figure 5a). However, wide inequalities remain.

### Inequalities

#### Ethnic group<sup>ii</sup>

- infant mortality rates vary considerably by ethnic group. In 2014, the Pakistani, Black African, and Black Caribbean ethnic groups, and those whose ethnic group was not stated, had significantly higher rates of infant mortality than England as a whole (Figure 5b)
- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White British).<sup>iii</sup> The average of these differences was 1.7 deaths per 1,000 live births in 2014
- data for England and Wales combined show that there was little change in inequality by ethnic group between 2009 and 2013, and a narrowing between 2013 and 2014<sup>iv</sup>

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<sup>i</sup> There was an increase in infant mortality in 2015. In this report, inequalities in infant mortality are examined using three-year pooled data up to the period, 2012-14.

<sup>ii</sup> Ethnic group is not recorded on birth registration records. So figures here are based on 2013 birth registration data linked to birth notification data, and death registrations where death was registered by 15 July 2015.<sup>1</sup>

<sup>iii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

## Deprivation

- the most deprived areas of England have the highest rates of infant mortality. There is a clear gradient, with less deprived areas having lower rates
- this inequality can be summarised by examining levels of infant mortality across the population in England divided into ten groups defined according to their level of deprivation.<sup>v</sup> In 2012-14, there was a difference of 3.1 deaths per 1,000 between the most and least deprived areas<sup>vi</sup> (Figure 5c)

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<sup>iv</sup> Data available in accompanying data pack.

<sup>v</sup> The resulting measures, the slope index of inequality and the relative index of inequality, represent the difference in infant mortality between the most and least deprived areas. See Appendix 2 for further details of these summary measures.

<sup>vi</sup> The relationship between infant mortality rates and deprivation appears to have become less linear over time. It is therefore difficult to measure changes in the slope index of inequality over time.



## Charts of infant mortality

The infant mortality rate fell significantly between 2001-03 and 2012-14. However, wide inequalities remain, with significantly higher rates of infant mortality amongst those in the Pakistani, Black Caribbean, and Black African ethnic groups.

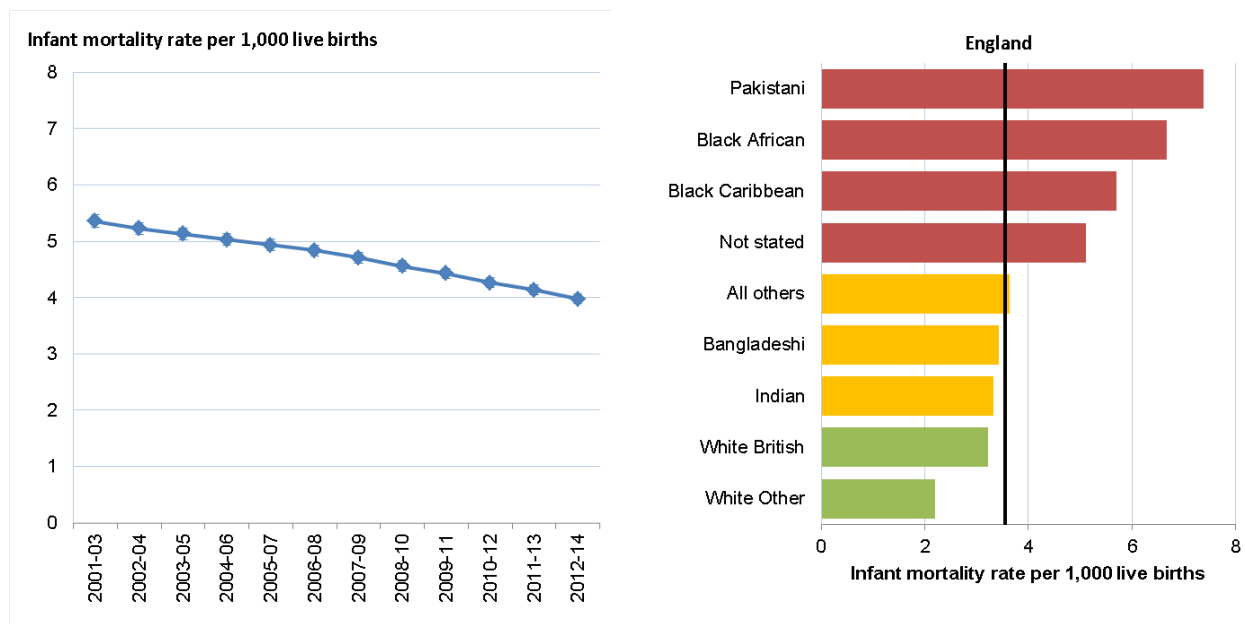


Figure 5a: England, 2001-03 to 2012-14.

Figure 5b: England, 2014.

Source: Public Health Outcomes Framework.

Source: ONS <sup>1</sup>.

Wide inequalities by deprivation exist, and the infant mortality rate in the most deprived tenth of areas is almost twice that of the least deprived tenth of areas.

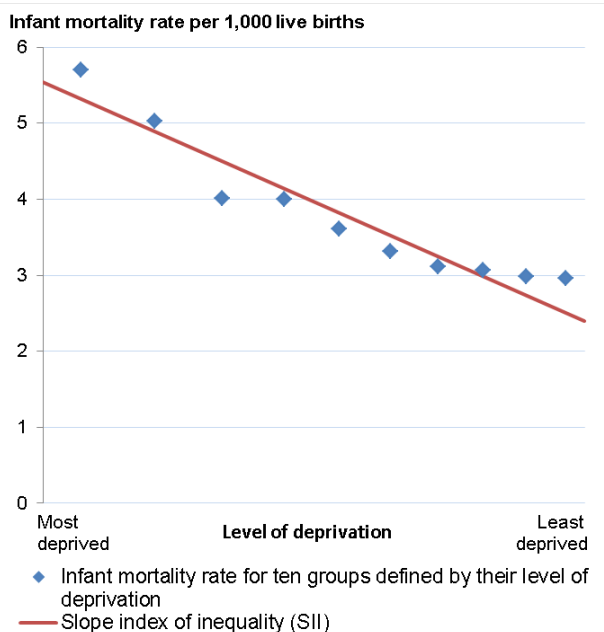


Figure 5c: England, 2012-14.

Source: PHE analysis of ONS data.

## References

1. Office for National Statistics. 2015. Pregnancy and ethnic factors influencing births and infant mortality: 2013. Available from: [www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/pregnancyandethnicfactorsinfluencingbirthsandinfantmortality/2015-10-14](http://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/pregnancyandethnicfactorsinfluencingbirthsandinfantmortality/2015-10-14) [Accessed 21 June 2017].

## Indicator 6 – Low birthweight of term babies

### Definition

Live births with a recorded birth weight under 2,500g and a gestational age of at least 37 complete weeks (full term) as a percentage of all live births with a recorded birth weight and a gestational age of at least 37 complete weeks.

Inequalities are examined by deprivation and ethnic group. The indicators used to measure inequality are:

- slope index of inequality and relative index of inequality (deprivation)
- mean deviation (ethnic group)

A description of the methodology used for these inequality measures can be found in [Appendix 2](#).

### Rationale for inclusion

There were just over 52,000 babies born in England in 2012-14 with low birth weight, 2.8% of total live births at full term. There has been no significant change in the percentage of babies with low birth weight since 2009-11.<sup>1</sup> Low birth weight increases the risk of childhood mortality and of developmental problems for the child, and is associated with poorer health in later life. A high proportion of low birth weight births could reflect issues with maternity services and/or behavioural factors of mothers<sup>1</sup>. For example, babies born to women who smoke weigh, on average, 200g less than babies born to non-smokers.<sup>2</sup>

This indicator is related to the PHE priority to give every child the best start in life.<sup>3</sup>

### Inequalities

#### Ethnic group<sup>i</sup>

- the percentage of babies born with low birth weight varies by ethnic group. In 2015, the Indian, Bangladeshi, Pakistani, Black Caribbean, and Other ethnic groups had significantly higher proportions of term babies born with low birth weight than England as a whole (Figure 6a)

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<sup>i</sup> Ethnic group is not recorded on birth registration records. So figures here are based on 2015 birth registration data linked to birth notification data.<sup>4</sup>

- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White British).<sup>ii</sup> The average of these differences was 1.6 percentage points in 2015
- inequality has narrowed between 2006 and 2015 (Figure 6b). This narrowing reflects a reduction in the percentage of births with low birthweight in the Bangladeshi, Indian, Pakistani ethnic groups between 2006 and 2015

## Deprivation

- there is considerable inequality by deprivation. This inequality can be summarised by examining low birth weight across the population of England divided into ten groups defined according to their level of deprivation,<sup>iii</sup> and shows babies born in the most deprived areas are over twice as likely to be of low weight than babies born in the least deprived areas (Figure 6c). There has been no change in inequality in recent years<sup>iv</sup>

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<sup>ii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iii</sup> The resulting measures are the slope index of inequality and the relative index of inequality, which represent the absolute and relative difference respectively in low birth weight between the most and least deprived areas. See Appendix 2 for further details of these summary measures.

<sup>iv</sup> Data available in accompanying data pack.

### Charts of low birth weight

Term babies in the Indian and Bangladeshi ethnic groups are more than twice as likely to be born with low birth weight as term babies in England as a whole, although inequality has narrowed since 2006.

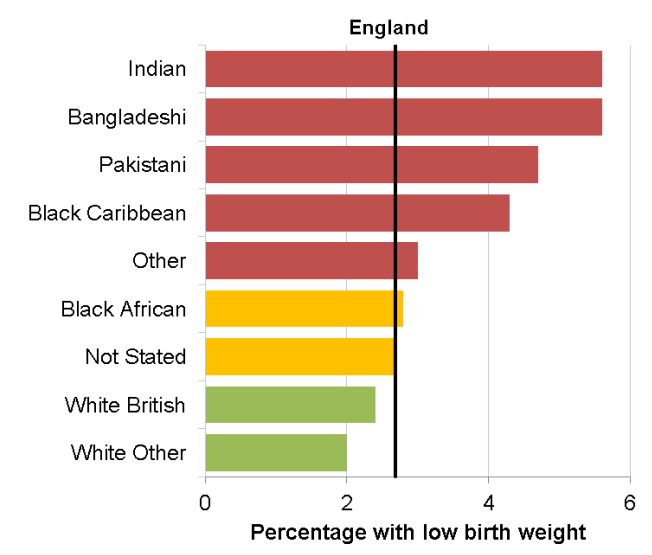


Figure 6a: England, 2015.

Source: ONS<sup>4</sup>

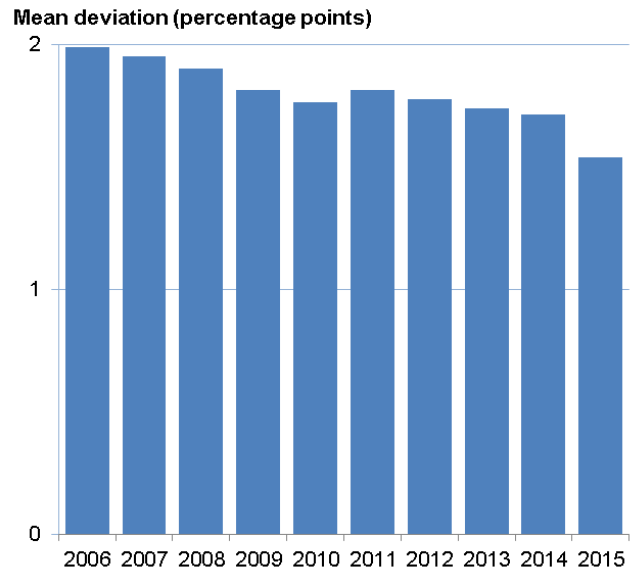


Figure 6b: England, 2006-2015.

Source: PHE analysis of ONS data.

There are wide inequalities in low birth weight, with the percentage of babies born with low birth weight in the most deprived areas more than double that of the least deprived areas.

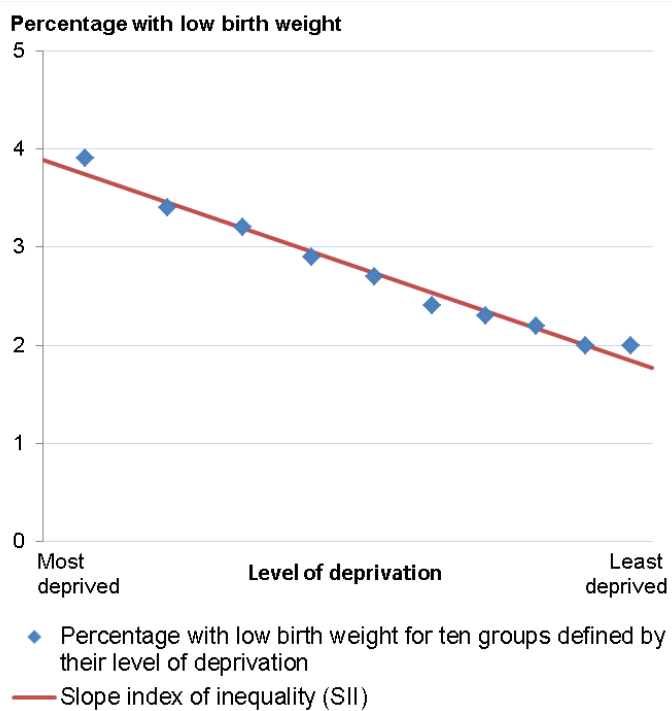


Figure 6c: England, 2012-15.

Source: PHE analysis of ONS data.

## References

1. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
2. NHS. 2015. Stop smoking in pregnancy. Available from: [www.nhs.uk/conditions/pregnancy-and-baby/pages/smoking-pregnant.aspx](http://www.nhs.uk/conditions/pregnancy-and-baby/pages/smoking-pregnant.aspx) [Accessed 21 June 2017].
3. Public Health England. 2014. From Evidence into action: opportunities to protect and improve the nation's health. Available from: [www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health](http://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health) [Accessed 21 June 2017].
4. ONS. 2017. Figures on births by gestation, ethnic group, IMD and area of usual residence. Available from: [www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/adhoc/006562figuresonbirthsbygestationethnicgroupimdandareaofusualresidence](http://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/adhoc/006562figuresonbirthsbygestationethnicgroupimdandareaofusualresidence) [Accessed 21 June 2017].

# Indicator 7 – Proportion of five year old children with dental decay

## Definition

Number of five year olds who have obvious dental decay as a percentage of the total number of five year olds examined.

This indicator is the inverse of the dental decay indicator presented in the Public Health Outcomes Framework which shows the proportion of children free from dental decay.

Inequalities are examined by ethnic group and deprivation. The indicators used to measure inequality are:

- mean deviation (ethnic group)
- slope index of inequality (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

## Rationale for inclusion

Tooth decay in children results in pain, sleep loss, time off school, and in some cases treatment under general anaesthetic. A quarter of five year olds in England who were examined in 2014/15 had obvious dental decay.<sup>1</sup> However, it is a predominantly preventable disease.

This indicator is related to the PHE priority to give every child the best start in life.<sup>2</sup>

## Inequalities

### Ethnic group

- there is considerable variation in the proportion of children with tooth decay by ethnic group. The percentage of children with tooth decay in the Black and White ethnic groups is significantly lower than England as a whole, with just over a fifth of children with obvious dental decay. However, over half of children in the Chinese group had tooth decay in 2014/15, more than double the England average<sup>i</sup> (Figure 7a)

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<sup>i</sup> Data are presented for broad ethnic groups, which may mask considerable inequality within the group.

- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White).<sup>ii</sup> The average of these differences is 12.8 percentage points

### Deprivation

- children in more deprived areas are more likely to have tooth decay than those living in less deprived areas. This inequality can be summarised by examining dental decay across the population of five year olds in England divided into ten groups defined according to their level of deprivation.<sup>iii</sup> There is a 26 percentage point difference between levels of tooth decay in the most deprived compared to the least deprived areas (Figure 7b)

### Charts of children with dental decay

There are large inequalities in dental decay by ethnic group, with children in the Chinese group twice as likely to have dental decay as England as a whole.

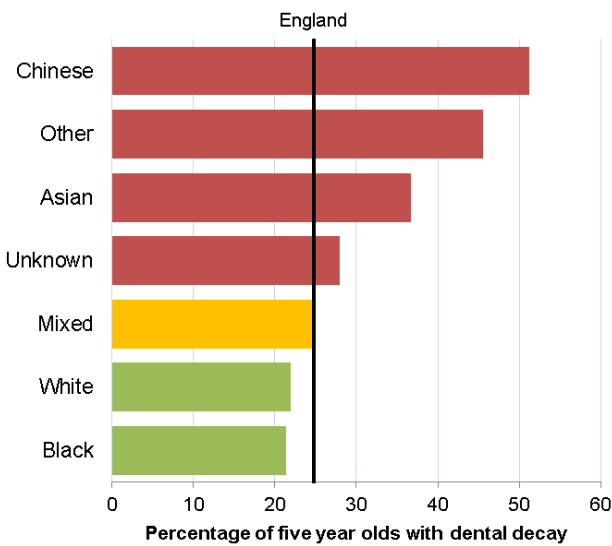


Figure 7a: England, 2014/15.

Source: PHE analysis of PHOF data.

Wide inequalities by deprivation exist, with a difference of 26 percentage points between the most and least deprived areas.

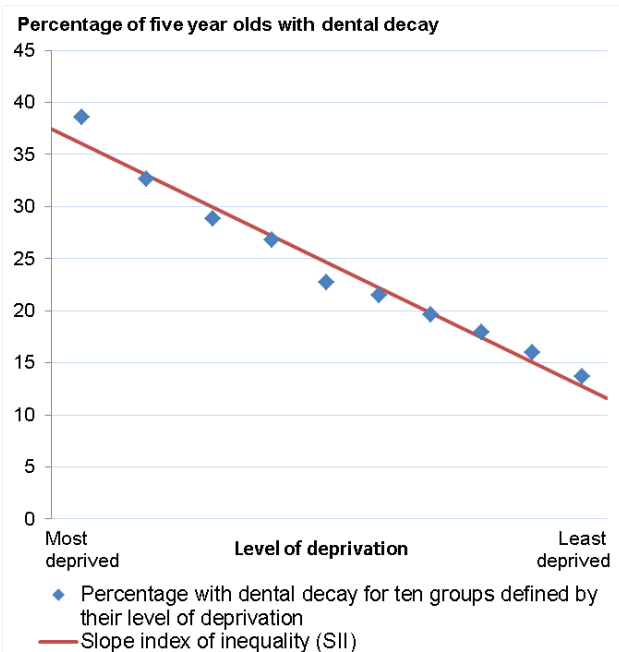


Figure 7b: England, 2014/15.

Source: PHE analysis of oral health survey data.

<sup>ii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iii</sup> The resulting measure, the slope index of inequality, represents the difference in excess weight between the most and least deprived areas. See Appendix 2 for further details of this summary measure.



## References

1. Public Health England. 2016. National Dental Epidemiology Programme for England: oral health survey of five-year-old children 2015. A report on the prevalence and severity of dental decay. Available from: [www.nwph.net/dentalhealth/](http://www.nwph.net/dentalhealth/) [Accessed 21 June 2017].
2. Public Health England. 2014. From Evidence into action: opportunities to protect and improve the nation's health. Available from: [www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health](http://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health) [Accessed 21 June 2017].

## Indicator 8 – Child excess weight in 4-5 and 10-11 year olds

### Definition

The proportion of children aged 4-5 or 10-11 years classified as overweight or obese.<sup>i</sup>

Inequalities are examined by age, sex, ethnic group, and deprivation. The indicators used to measure inequality are:

- mean deviation (ethnic group)
- slope index of inequality (deprivation)
- absolute difference (age and sex)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

The UK is experiencing an epidemic of obesity affecting both adults and children. In 2014/15, just over a fifth (21.9%) of children aged 4-5, and a third (33.2%) of children aged 10-11 were either overweight or obese in England. This has not changed notably since 2009/10. The health consequences of childhood obesity include type 2 diabetes, hypertension, and exacerbation of conditions such as asthma.<sup>1</sup> It is also associated with poor mental health, low self-esteem, stigma and bullying.<sup>2</sup>

There is concern about the implications of childhood obesity persisting into adulthood and the stark inequalities in the prevalence of obesity in children. Increasing the proportion of children leaving primary school with healthy weight is one of PHE's priorities.<sup>3</sup>

### Inequalities

#### Sex and age

- in both age groups, boys are significantly more likely than girls to be overweight or obese. At ages 4-5 in 2014/15, 22.6% of boys were overweight or obese compared with 21.2% of girls, a gap of 1.4 percentage points

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<sup>i</sup> Children are classified as overweight (including obese) if their body mass index (BMI) is on or above the 85<sup>th</sup> centile of the British 1990 growth reference (UK90) according to age and sex.

- more children are overweight or obese at ages 10-11 than 4-5, and there is also greater inequality between the sexes, with 34.9% of boys and 31.5% of girls with excess weight, a gap of 3.4 percentage points

## Ethnic group

- amongst 4-5 year olds, those in the Black ethnic groups, and the mixed White and Black groups were most likely to be overweight or obese in 2014/15. Indian, Mixed White and Asian, and Chinese children were least likely to be overweight or obese. Children in the Black African ethnic group were more than twice as likely to be overweight or obese than children in the Indian ethnic group (30.8% compared with 14.9%) (Figure 8a)
- the proportion of children with excess weight was higher at ages 10-11 in all ethnic groups compared with ages 4-5. At ages 10-11, almost all BME groups had significantly high proportions of children with excess weight compared with England as a whole. For children in the Black African group, 45% were overweight or obese, compared with less than a third in the Mixed White and Asian group (29%) (Figure 8b)
- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White British).<sup>ii</sup> Among 4-5 year olds, the average of these differences is 3.5 percentage points. Inequality is greater between ethnic groups for 10-11 year olds, where the average difference is 6.5 percentage points. There has been little change in inequality by ethnic group since 2013/14

## Deprivation

- the most deprived areas of England have the highest proportion of overweight and obese children. There is a clear gradient, with less deprived areas having a lower proportion
- this inequality can be summarised by examining levels of excess weight across the population of children in England divided into ten groups defined according to their level of deprivation.<sup>iii</sup> Amongst children aged 4-5 in 2014/15, there was a difference of 9.2 percentage points between the most and least deprived areas in England (Figure 8c). For children aged 10-11 there was wider inequality, with a 17.5 percentage point difference (Figure 8d)
- there has been a widening of inequality for both age groups between 2013/14 and 2014/15, although this is not statistically significant

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<sup>ii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iii</sup> The resulting measure, the slope index of inequality, represents the difference in excess weight between the most and least deprived areas. See Appendix 2 for further details of this summary measure.

### Charts of child excess weight

There are large inequalities in excess weight by ethnic group, with the Black African group having the highest proportion of children with excess weight.

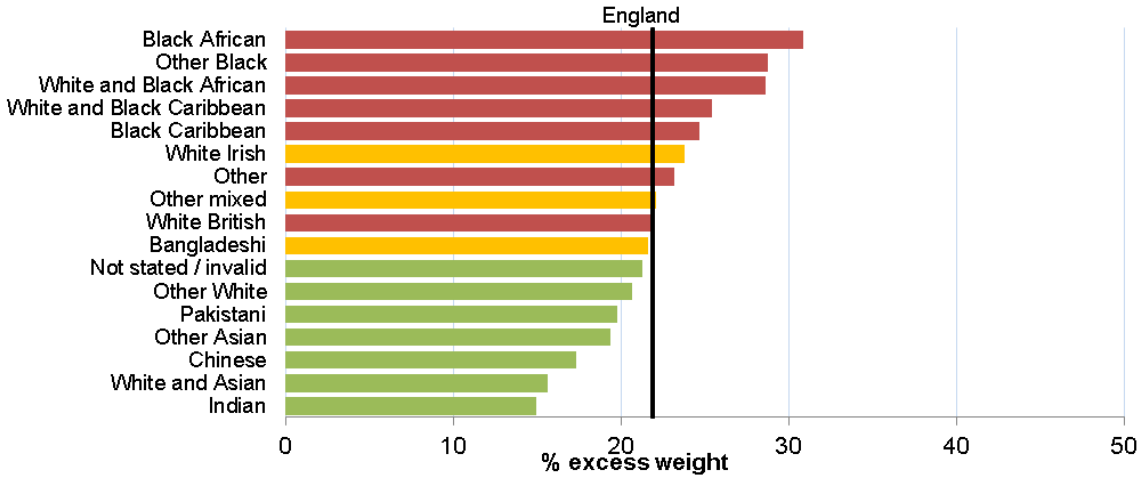


Figure 8a: 4-5 year olds, England, 2014/15.

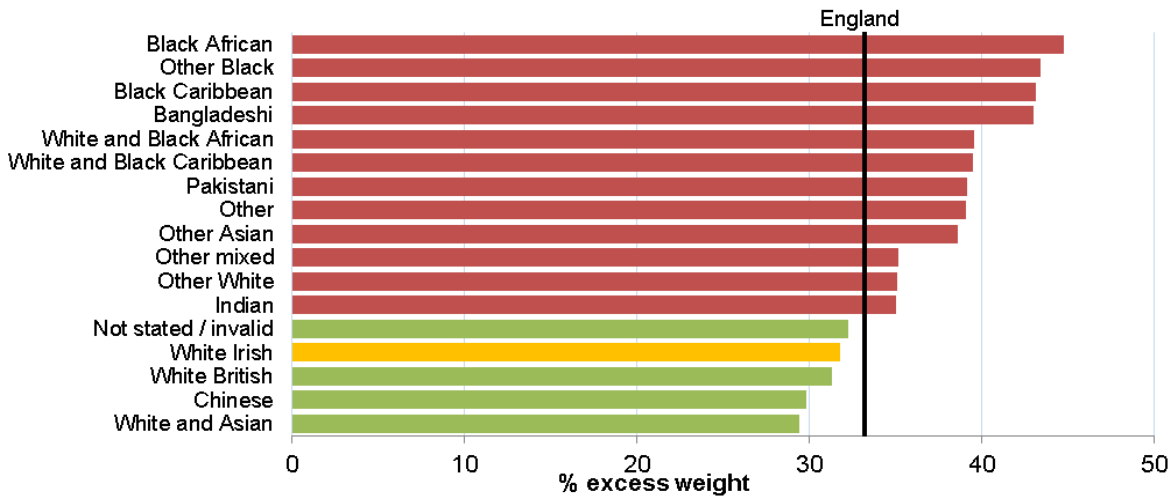


Figure 8b: 10-11 year olds, England, 2014/15.

Source: Public Health Outcomes Framework.

Inequalities in excess weight by deprivation exist in both age groups, with a difference of 9.2 percentage points between the most and least deprived areas amongst 4-5 year olds and a difference of 17.5 percentage points amongst 10-11 year olds.

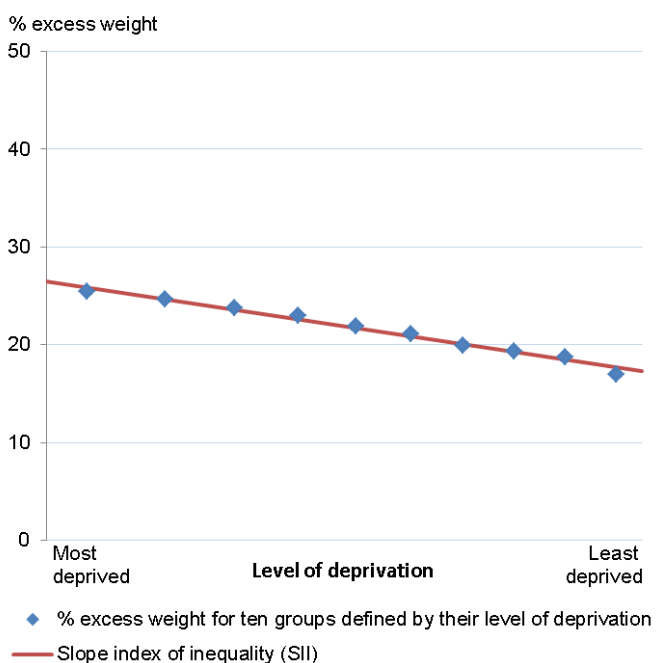


Figure 8c: 4-5 year olds, England, 2014/15.

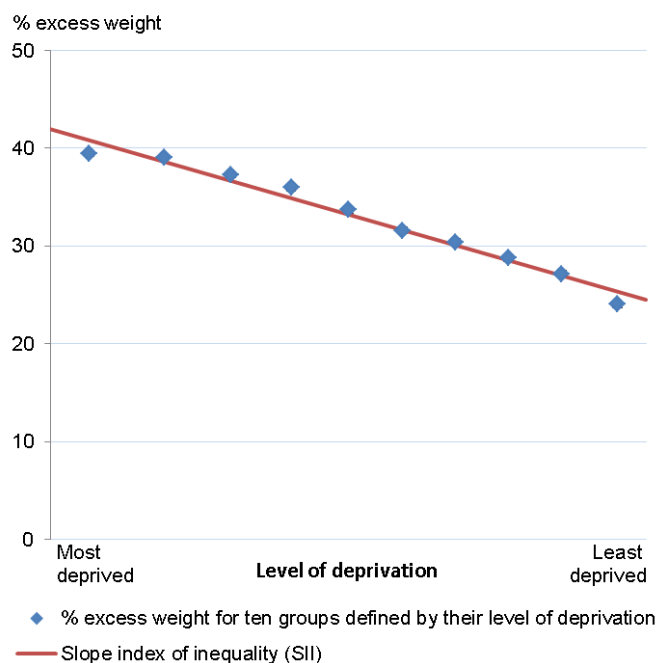


Figure 8d: 10-11 year olds, England, 2014/15.

Source: PHE analysis of National Child Measurement Programme (NCMP) data.

## References

1. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info](http://www.phoutcomes.info) [Accessed 21 June 2017].
2. Public Health England. 2014. From Evidence into action: opportunities to protect and improve the nation's health. Available from: [www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health](http://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health) [Accessed 21 June 2017].

## Indicator 9 – Alcohol-related hospital admissions

### Definition

Directly age-standardised rate of hospital admissions for alcohol-related conditions per 100,000 population.<sup>1</sup>

Inequalities are examined by sex, ethnic group and deprivation. The indicators used to measure inequality are:

- absolute and relative difference (sex)
- slope index of inequality and relative index of inequality (deprivation)
- comparison to proportion of all admissions (ethnic group)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Alcohol consumption is a contributing factor to hospital admission and deaths from a diverse range of conditions. There were over 330,000 alcohol-related admissions to hospital in England in 2014/15. The age-standardised rate was 641 admissions per 100,000 population, and this has not changed significantly between 2009/10 and 2014/15.<sup>1</sup> Alcohol misuse is estimated to cost the NHS about £3.5 billion per year and society as a whole £21 billion annually.<sup>2</sup>

Reducing the number of hospital admissions due to alcohol is one of PHE's priorities.<sup>3</sup>

### Inequalities

#### Sex

- In 2014/15, the rate of alcohol-related hospital admissions was significantly higher amongst men, with 827 admissions per 100,000 population, compared with 474 per 100,000 population amongst women (Figure 9a)

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<sup>1</sup> Alcohol-related admissions are defined using the 'narrow' definition developed for the Local Alcohol Profiles for England, and includes admissions where the primary diagnosis is an alcohol-related code, or where the secondary diagnosis is an alcohol attributable external cause. More details can be found at: [www.lape.org.uk/downloads/lape\\_guidance\\_and\\_methods.pdf](http://www.lape.org.uk/downloads/lape_guidance_and_methods.pdf)

## Deprivation

- the rate of admissions to hospital for alcohol-related conditions is significantly higher in the most deprived areas of England
- this inequality can be summarised by examining alcohol admission rates across the population of England divided into ten groups defined according to their level of deprivation.<sup>ii</sup> This shows that there was a difference of 566 admissions per 100,000 population between the most and least deprived (Figure 9b)
- the trend in this inequality has fluctuated since 2005/06 (Figure 9c)

## Ethnic group

- inequalities by ethnic group have been examined for alcohol specific admissions, rather than alcohol-related admissions<sup>iii</sup>
- in 2014/15, there were almost 65,000 alcohol specific admissions amongst men, and almost 40,000 amongst women
- for men, the White British, White Irish, Other White, Indian, and Other ethnic groups make up a higher proportion of alcohol admissions compared with admissions from all causes. For example, White British men make up 79.1% of alcohol specific admissions, but only 75.4% of admissions for all causes (Figure 9d)
- for women, the White British and White Irish groups are overrepresented amongst alcohol specific admissions compared with admissions from all causes, with 84.5% of alcohol specific admissions being amongst the White British group, but only 74.6% of all admissions (Figure 9e)

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<sup>ii</sup> The resulting measure, the slope index of inequality, represents the difference in rates of alcohol-related admissions between the most and least deprived areas. See Appendix 2 for further details of this summary measure.

<sup>iii</sup> Alcohol specific admissions are defined as those that are wholly attributable to alcohol. More details can be found at: [www.lape.org.uk/downloads/lape\\_guidance\\_and\\_methods.pdf](http://www.lape.org.uk/downloads/lape_guidance_and_methods.pdf)

## Charts of alcohol admissions

Men are significantly more likely to be admitted to hospital for an alcohol-related condition.

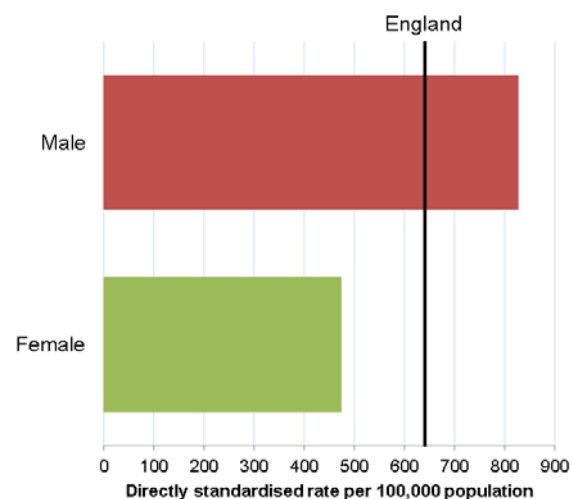


Figure 9a: England, 2014/15.

Source: Public Health Outcomes Framework.

There are wide inequalities in alcohol-related hospital admissions, with a difference of 566 admissions per 100,000 between the most and least deprived areas. The trend has fluctuated since 2005/06.

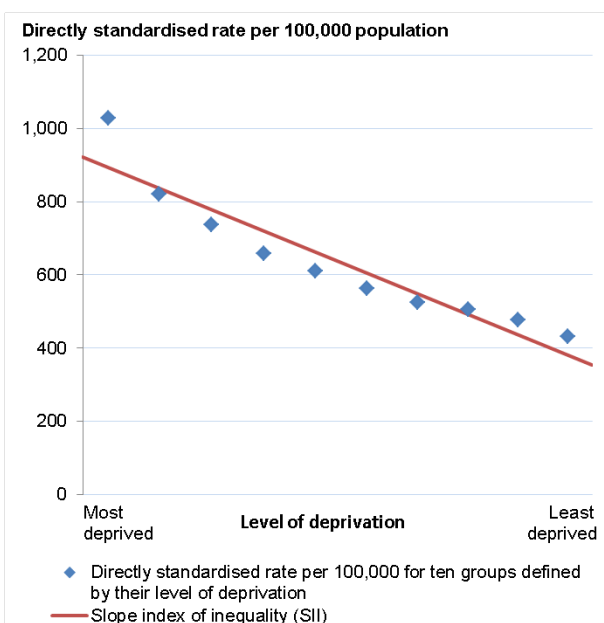


Figure 9b: England, 2014/15.

Source: PHE analysis of Hospital Episode Statistics data.

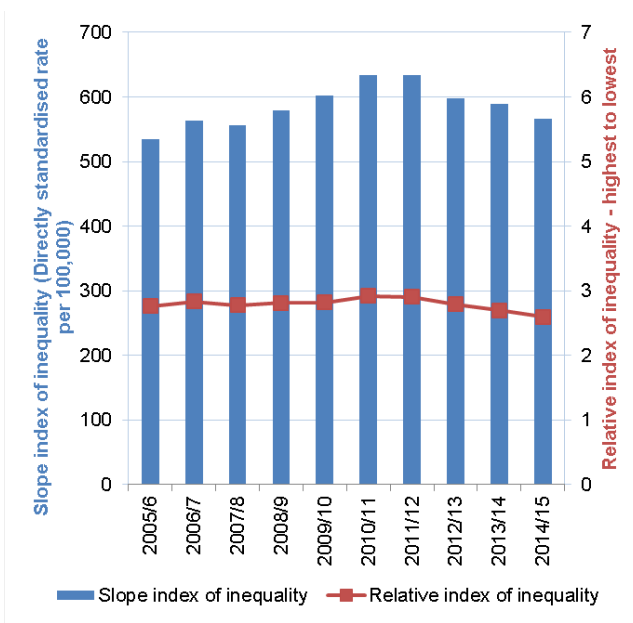


Figure 9c: England, 2005/6 to 2014/15



There are variations in the ethnic group distribution of alcohol specific admissions compared with admissions for all causes for both males and females. Where the percentage for alcohol specific admissions for a given ethnic group is larger than the percentage for all admissions, this means there is a disproportionate number of alcohol specific admissions for this ethnic group (shaded red in the chart).

	All admissions (%)	Alcohol specific admissions (%)
White British	75.4	79.1
Other White	3.7	4.7
Indian	1.8	2.0
Other	1.6	1.7
White Irish	0.8	1.1
Other Asian	1.1	0.8
Black African	1.0	0.5
Black Caribbean	0.9	0.5
Pakistani	1.8	0.5
Other Black	0.5	0.4
Other Mixed	0.4	0.3
White and Black Caribbean	0.3	0.2
Bangladeshi	0.5	0.1
White and Asian	0.2	0.1
White and Black African	0.1	0.1
Chinese	0.2	0.0
Not given/not stated	9.8	7.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Figure 9d: Males, England, 2014/15.

	All admissions (%)	Alcohol specific admissions (%)
White British	74.6	84.5
Other White	4.4	3.3
Other	1.7	1.1
White Irish	0.7	0.8
Black Caribbean	1.0	0.5
Indian	1.9	0.4
Black African	1.4	0.4
Other Black	0.5	0.4
Other Mixed	0.4	0.4
White and Black Caribbean	0.3	0.3
Other Asian	1.1	0.3
White and Asian	0.2	0.2
Pakistani	2.0	0.1
White and Black African	0.2	0.1
Chinese	0.3	0.1
Bangladeshi	0.6	0.1
Not given/not stated	8.8	7.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Figure 9e: Females, England, 2014/15.

Source: PHE analysis of Hospital Episode Statistics data.

## References

1. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
2. These costs are all given in the Department of Health's written evidence to the Health Select Committee (19 July 2012): [www.publications.parliament.uk/pa/cm201213/cmselect/cmhealth/132/132we02.htm](http://www.publications.parliament.uk/pa/cm201213/cmselect/cmhealth/132/132we02.htm)
3. Public Health England. 2014. From Evidence into action: opportunities to protect and improve the nation's health. Available from: [www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health](http://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health) [Accessed 21 June 2017].

# Indicator 10 – Prevalence of smoking among persons aged 18 years and over

## Definition

Prevalence of smoking among persons aged 18 years and over.<sup>i</sup>

Inequalities are examined by sex, ethnic group, religion, sexual orientation, socio-economic classification and deprivation. The indicators used to measure inequality are:

- mean deviation (ethnic group, religion, sexual orientation)
- absolute difference (sex, socio-economic classification, deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

## Rationale for inclusion

Smoking is a major cause of preventable morbidity and premature mortality. It is a risk factor for many diseases including chronic obstructive pulmonary disease (COPD), heart disease and numerous cancers.<sup>1</sup>

Smoking prevalence has declined in England in recent years, with an estimated 16.9% of adults smoking in 2015, compared to 19.3% in 2012 (Figure 10a). Despite this, smoking is concentrated in more disadvantaged groups and is a major contributor to health inequalities in England.

Reducing smoking, and stopping the number of young people starting smoking, is one of PHE's priority areas.<sup>2</sup>

## Inequalities

### Socio-economic classification

- smoking prevalence amongst adults (ages 18+) in routine and manual occupations<sup>ii</sup> was 26.5% in 2015, 9.6 percentage points higher than the prevalence in the population as a whole. This inequality has remained fairly constant since 2012, although there was a narrowing of 0.5 percentage points between 2014 and 2015 (Figure 10b)

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<sup>i</sup> Based on respondents to the Annual Population Survey who stated that they currently smoked.

<sup>ii</sup> Defined by the National Statistics Socio-Economic Classification (NS-SEC).

## Sex

- smoking prevalence is statistically significantly higher in males than in females, with 19.1% of males reporting being current smokers in 2015 compared with 14.9% of females (Figure 10c)

## Sexual orientation

- there is wide variation in the prevalence of smoking by sexual orientation. In 2015, smoking prevalence in the Bisexual and Gay/Lesbian groups was significantly higher than that of England as a whole (26.3% and 23.9% respectively) (Figure 10d)
- this inequality can be summarised by measuring the difference between each sexual orientation group and the largest (Heterosexual/straight). In 2015, the average of these differences was 4.5 percentage points

## Ethnic group and sex

- there is wide variation in the prevalence of smoking by ethnic group and sex. In 2015, smoking prevalence amongst males was higher than females across all ethnic groups. In the Asian group, smoking prevalence was almost five times higher in males compared with females (Figure 10e)
- in 2015, smoking prevalence was significantly higher than the England average in the Mixed ethnic group for both males and females (25.5% and 20.1% respectively). Smoking prevalence was also significantly higher than England in the Other ethnic group for males and the White group for females<sup>iii</sup>
- these inequalities can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White). In 2015, the average of these differences was 3.8 percentage points for males and 8.0 for females

## Religion and sex

- prevalence of smoking by religious group indicates that those who reported no religious belief had the highest prevalence of smoking in 2015 amongst both males and females (22.5% and 21.2% respectively), significantly higher than the England average. Males in the Muslim group also had significantly high smoking prevalence (Figure 10f)
- the summary measure of inequality, measuring the difference between each religious group and the largest group (Christian), shows that for males, the

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<sup>iii</sup> Data are presented for broad ethnic groups, which may mask considerable inequality within the group.

average of these differences was 5.3 percentage points, and for females 7.3 percentage points

- smoking prevalence was significantly higher amongst males than females in all religious groups, with the exception of the Jewish group, where there was no significant difference

### Deprivation

- there is a clear relationship between deprivation and smoking, with populations living in the most deprived areas more likely to be smokers (Figure 10g)
- this inequality can be summarised by examining smoking prevalence across all local authorities in England divided into ten groups defined according to their level of deprivation, and then comparing the most and least deprived groups.<sup>iv</sup> This shows that there was a difference of 6.2 percentage points between the most and least deprived areas in 2015

### Charts of smoking prevalence

Smoking prevalence in England has reduced year on year since 2012.

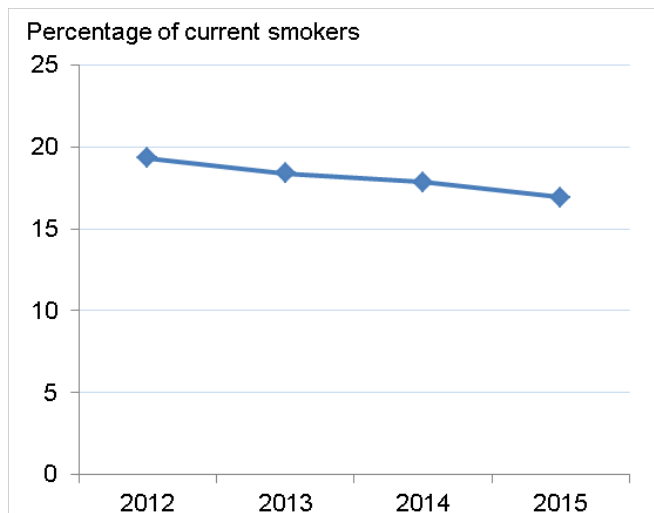


Figure 10a: England, 2012 to 2015.

Source: Public Health Outcomes Framework.

<sup>iv</sup> Upper tier local authorities were grouped according to their level of deprivation. The slope index of inequality measure was not calculated as data were not available at small enough geographical level to enable calculation in a consistent way to other indicators. See Appendix 2 for further details.

There are considerable inequalities in smoking prevalence rates between population groups. Those in routine and manual occupations, men, and those identifying as bisexual or gay/lesbian all had significantly higher rates of smoking than the England average.

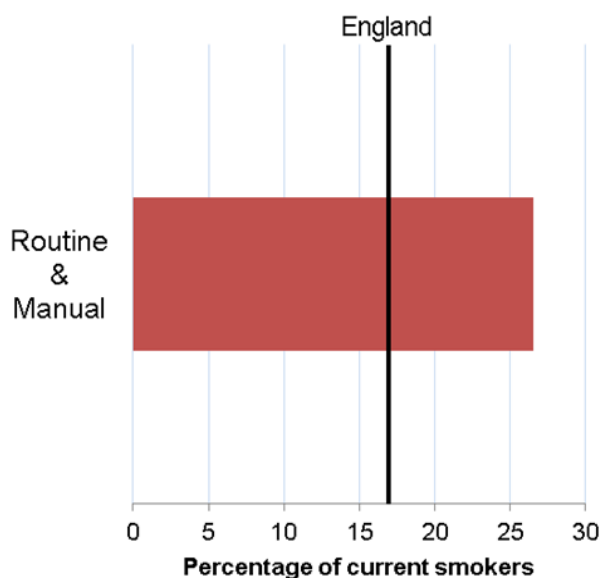


Figure 10b: Socio-economic class, England, 2015.

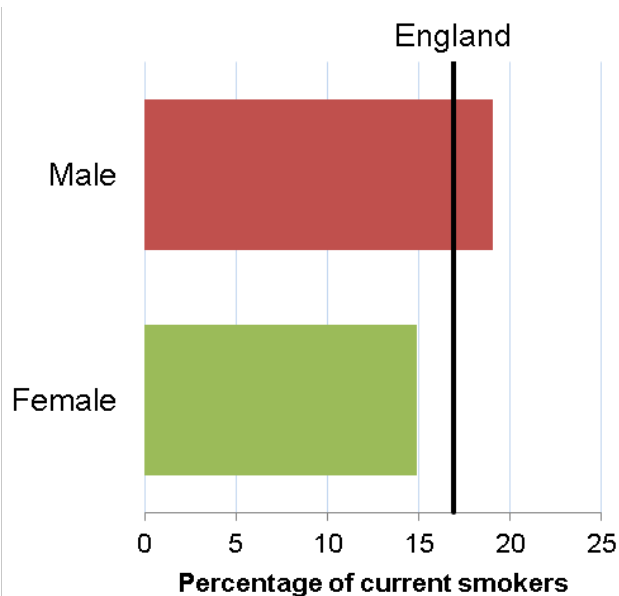


Figure 10c: Sex, England, 2015.

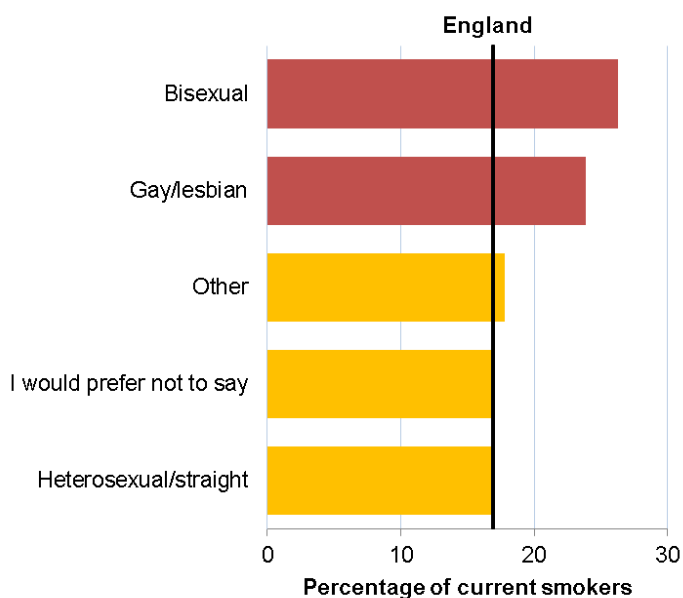


Figure 10d: Sexual orientation, England, 2015.

Source (All): Public Health Outcomes Framework.

There are considerable differences in smoking prevalence between ethnic groups and religious groups by sex. Both males and females in the mixed ethnic group and males and females reporting no religion have significantly high rates of smoking prevalence.

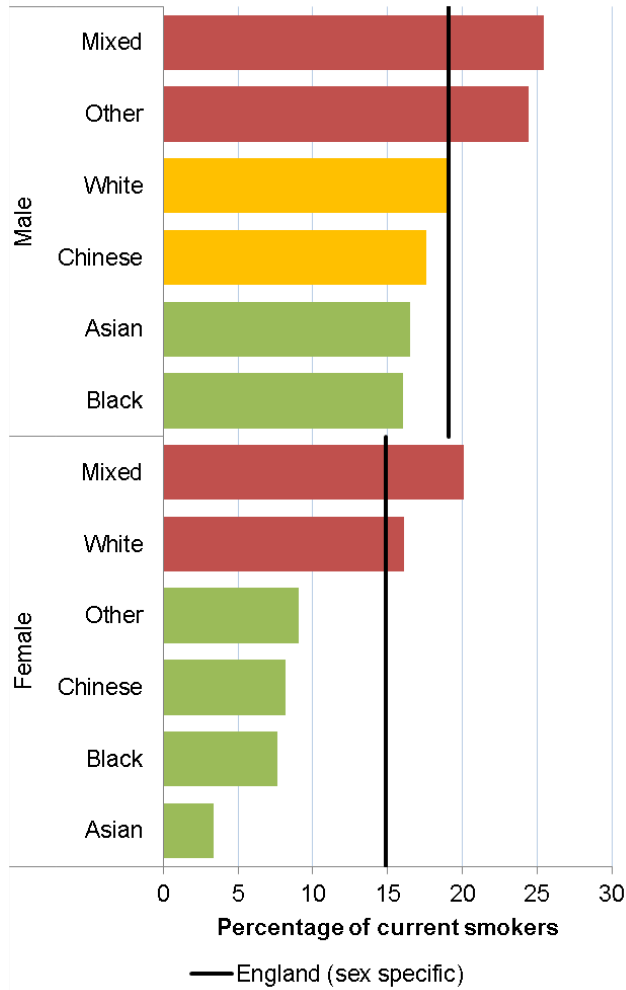


Figure 10e: Ethnic group, England, 2015.

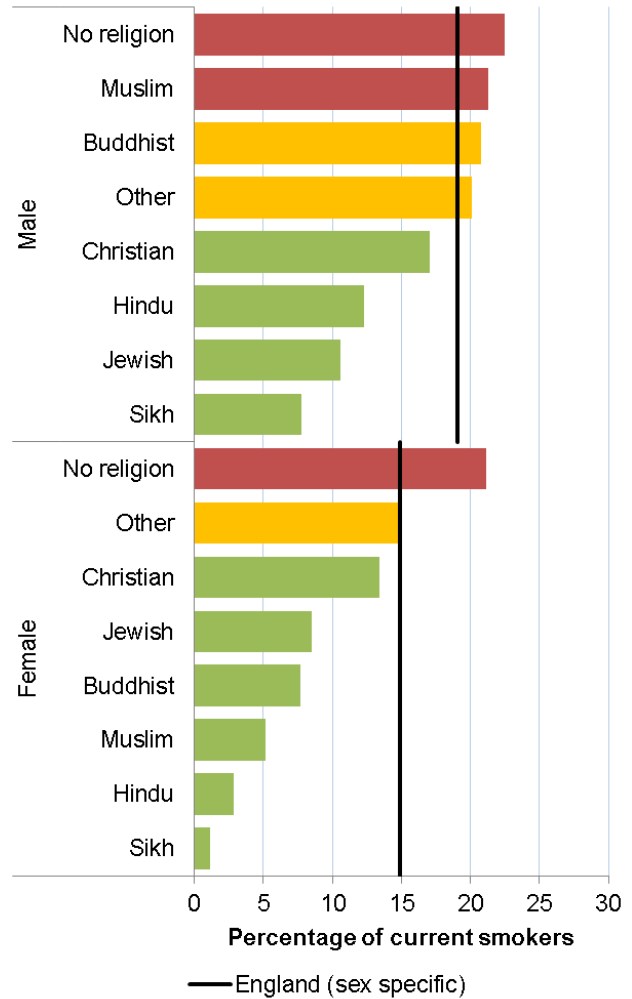


Figure 10f: Religion, England, 2015.

Source (All): PHE analysis of Annual Population Survey data.

There is a clear association between smoking prevalence and deprivation, with a higher rate of smoking prevalence in the most deprived areas.

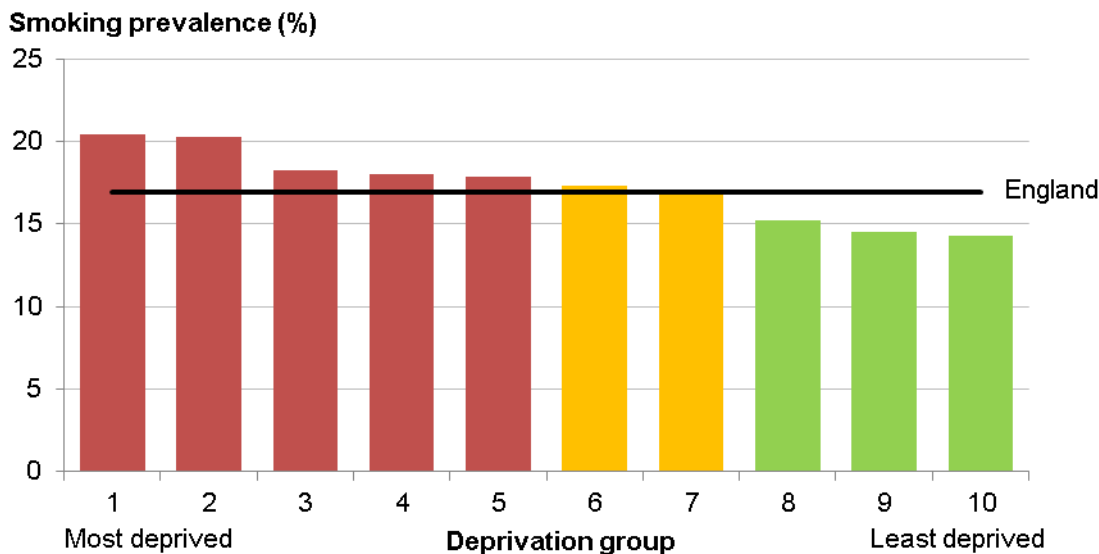


Figure 10g: Upper tier local authorities grouped according to their level of deprivation, England, 2015.

Source: Public Health Outcomes Framework.

## References

1. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
2. Public Health England. 2014. From Evidence into action: opportunities to protect and improve the nation's health. Available from: [www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health](http://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health) [Accessed 21 June 2017].

# Indicator 11 – Incidence of tuberculosis

## Definition

Number of reported new cases of active tuberculosis (TB) per year per 100,000 population.<sup>i</sup>

Inequalities are examined by country of birth, ethnic group and deprivation. The indicators used to measure inequality are:

- absolute and relative difference (country of birth)
- mean deviation (ethnic group)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

## Rationale for inclusion

Tuberculosis has re-emerged as a serious public health problem in the UK over the last two decades, with one of the highest rates of TB in Western Europe. In 2015 there were almost 5,800 new cases of tuberculosis in England.<sup>1</sup> The three year average incidence rate in 2013-15 was 12.0 cases per 100,000 population,<sup>2</sup> a significant reduction in the incidence rate since the peak in 2009-11 (Figure 11a). Reducing tuberculosis is one of PHE's priority areas.<sup>3</sup>

## Inequalities

### Country of birth<sup>ii</sup>

- the majority (72%) of new cases of tuberculosis in England in 2015 were in people born outside of the UK. The incidence of tuberculosis in people born outside of the UK was 15 times higher than that of those born within the UK (Figure 11b)
- India, Pakistan, Bangladesh and Somalia were the most common countries of birth of those born outside of the UK and diagnosed with TB in 2015. New diagnoses from people born in these four countries make up over half of the total number of non-UK born new tuberculosis cases (Figure 11c)

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<sup>i</sup> Based on case notification.

<sup>ii</sup> Inequalities by country of birth and ethnic group are not reported in the Public Health Outcomes Framework. However, this data is published for single years in the PHE Tuberculosis in England Annual Report.<sup>4</sup>



- the reduction in the number of cases born in India, Pakistan, Somalia and Bangladesh accounted for 81% of the decrease in numbers of non-UK born cases between 2012 and 2015

### Ethnic group<sup>ii</sup>

- the rate of new cases of tuberculosis for those born within the UK is highest in the Black Other group (Figure 11d)
- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White).<sup>iii</sup> Amongst those born within the UK, the average of these differences was 17.3 cases per 100,000 in 2015

### Deprivation

- the highest rates of tuberculosis incidence are found in the most deprived areas, and the lowest rates in the least deprived areas (Figure 11e)<sup>iv</sup>

### Charts of tuberculosis incidence

Despite previous increases in the tuberculosis incidence rate, there has been a significant decrease in the rate in recent years.

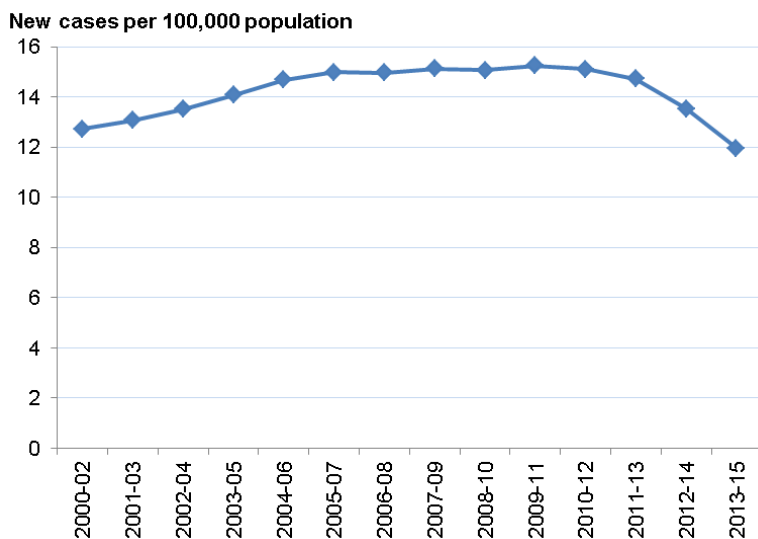


Figure 11a: Persons, England, 2000-02 to 2013-15.

Source: Public Health Outcomes Framework.

<sup>iii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iv</sup> A summary measure has not been calculated for deprivation for this indicator.

The incidence of tuberculosis is significantly higher amongst those born outside the UK, with India, Pakistan, Bangladesh and Somalia the most common countries of birth. However, 28% of new cases are found amongst UK born people, with all ethnic groups except the White and Chinese groups having significantly higher incidence rates than the UK born population as a whole.

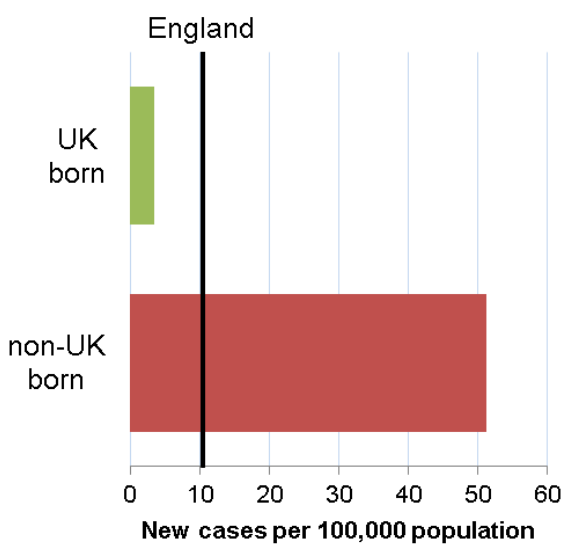


Figure 11b: England, 2015

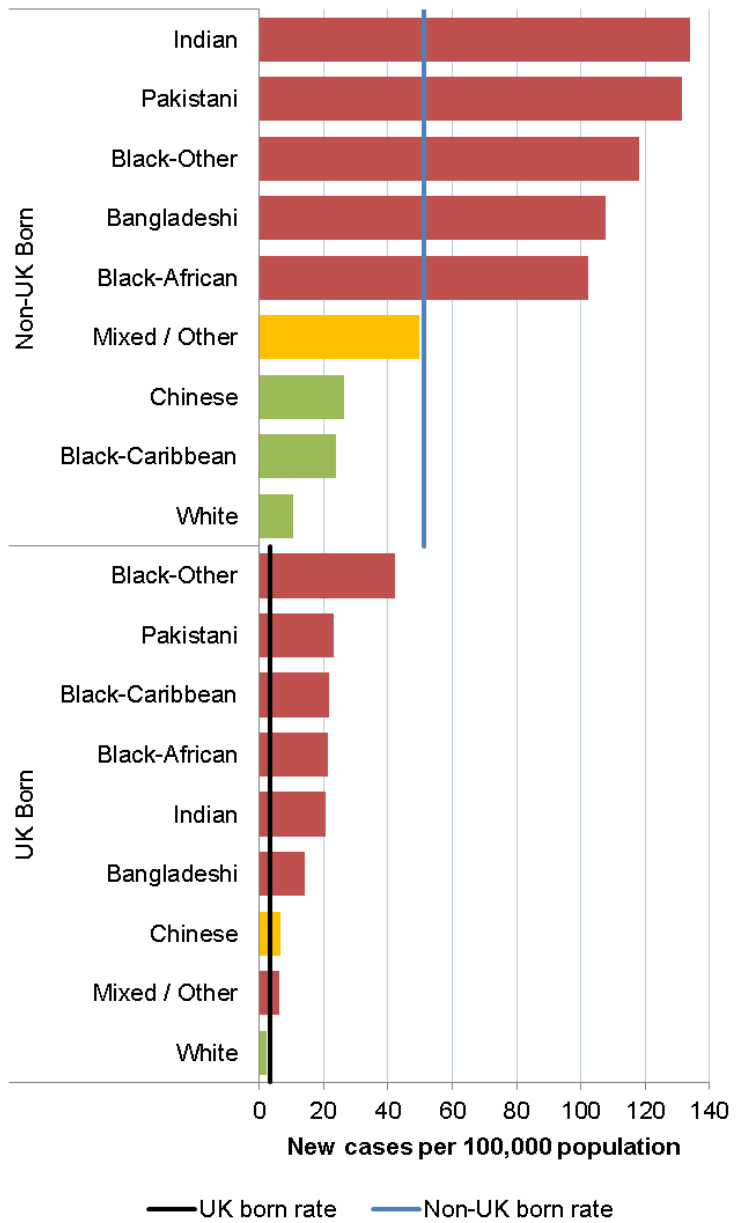


Figure 11d: Country of birth and ethnic group, England, 2015.

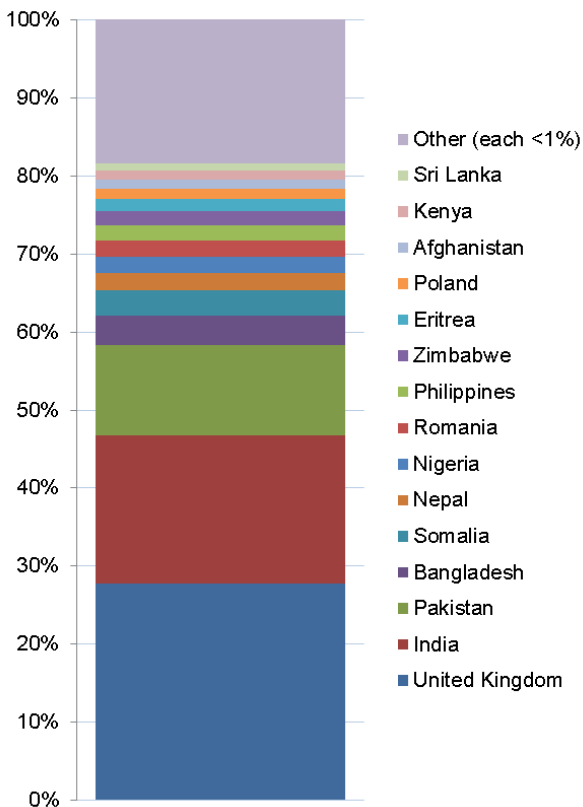


Figure 11c: Percentage distribution of new TB cases by country of birth, England, 2015.

Source (All): PHE Tuberculosis in England 2016 report.

Tuberculosis incidence is significantly higher in the most deprived areas compared with the least deprived areas.

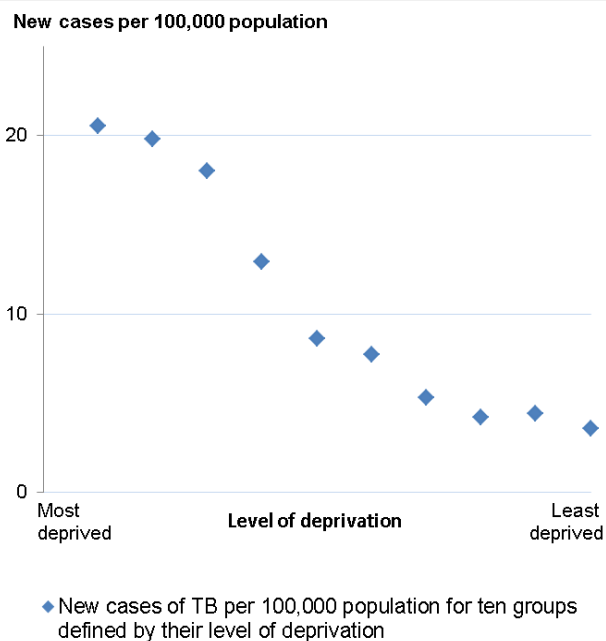


Figure 11e: England, 2015.

Source: PHE Tuberculosis in England 2016 report.

## References

1. Public Health England. 2016. Tuberculosis in England: 2016 report: presenting data to the end of 2015. Available from: [www.gov.uk/government/publications/tuberculosis-in-england-annual-report](http://www.gov.uk/government/publications/tuberculosis-in-england-annual-report) [Accessed 21 June 2017].
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## Indicator 12 – Suicide

### Definition

Age-standardised mortality rate from suicide and injury of undetermined intent per 100,000 population (10+ years).<sup>i</sup>

Inequalities are examined by sex, country of birth, ethnic group and deprivation. The indicators used to measure inequality are:

- absolute and relative difference (sex)
- mean deviation (ethnic group)
- variation from England - Standardised Mortality Ratio (country of birth)
- slope index of inequality and relative index of inequality (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Suicide is a significant cause of death in young adults, and is a key indicator of mental ill-health. The suicide rate has gradually increased since 2006-08, to 10.0 deaths per 100,000 population in 2012-14<sup>1</sup> (Figure 12a) and wide inequalities in suicide rates remain across sub populations in England.

### Inequalities

#### Sex

- there are significant differences in suicide rates between men and women. In 2012-14, there were 15.8 suicides per 100,000 population amongst males, more than three times the rate for females (4.5 deaths per 100,000 population) (Figure 12b)

#### Ethnic group<sup>ii</sup>

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<sup>i</sup> The definition of suicide includes deaths given an underlying cause of intentional self-harm or injury/poisoning of undetermined intent. In England and Wales, it has been customary to assume that most injuries and poisonings of undetermined intent are cases where the harm was self-inflicted but there was insufficient evidence to prove that the deceased deliberately intended to kill themselves.

- data are available on self-harm, suicidal thoughts, and suicide attempts by ethnic group from the Adult Psychiatric Morbidity Survey. These behaviours are strongly associated with mental illness, and can be used to identify people at higher risk of taking their own life in future. However, the relationship between these behaviours and suicide is not straightforward, and the profile of people reporting self-harm, and those who take their own life is very different<sup>ii</sup>
- there is variation by ethnic group in the percentage of people reporting suicidal thoughts, suicide attempts and self-harm in their lifetime. The White British group had the highest age-standardised percentages of people reporting suicidal thoughts, suicide attempts or self-harm. For people in the White British group, 21.6% reported suicidal thoughts compared with 13.1% of the Asian/Asian British group. There were also wide inequalities in those reporting self-harm, with 8.1% of those in the White British group compared with 4.2% of those in the Mixed, multiple and other ethnic group reporting self-harm (Figure 12c)
- these inequalities can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White British).<sup>iii</sup> Among those reporting suicidal thoughts, the average of these differences is 3.5 percentage points. There were smaller inequalities in the other areas, with an average difference of 3.0 percentage points amongst those reporting self-harm, and 1.1 percentage points amongst those reporting suicide attempts

#### Country of birth<sup>iv</sup>

- there are wide inequalities in suicide by country of birth in England
- men and women born in Scotland and Ireland have significantly high mortality from suicide, compared with England as a whole.<sup>v</sup> There is variation between the sexes, with a standardised mortality rate of 165 amongst men born in EU accession countries. However, amongst women, there was no significant difference in suicide mortality between those born in the EU accession countries and England as a whole (Figures 12d and 12e)
- suicide amongst men born in EU member countries (2001) was significantly lower than England as a whole. However, suicide mortality amongst men born in Germany (part of the EU member countries group) was significantly higher than average

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<sup>ii</sup> Ethnic group data is not collected on death registration records, but the Adult Psychiatric Morbidity Survey<sup>2</sup> collects data on suicidal thoughts, self-harm and suicide attempts by ethnic group, which is reported here.

<sup>iii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iv</sup> Inequalities by ethnic group have not been calculated. Since ethnic group is not available on death registration records it is not possible to calculate mortality rates based solely on death registration data.

<sup>v</sup> The England overall value refers to all deaths from suicide in England regardless of country of birth.

## Deprivation

- the most deprived areas of England have the highest mortality from suicide
- inequality in suicide can be summarised by examining mortality rates across the population of England divided into ten groups defined according to their level of deprivation.<sup>vi</sup> This shows that there was a difference of 7.4 deaths per 100,000 population between the most and least deprived areas in 2012-14. People in the most deprived areas were more than twice as likely to die from suicide than those in the least deprived areas (Figure 12f)
- inequality from suicide has fluctuated over the last decade. There was a narrowing of absolute inequality in successive time periods between 2001-03 and 2010-12, but in 2011-13 and 2012-14 this inequality gap widened, although this was not statistically significant. Relative inequality has narrowed since 2001-03 but has remained unchanged over recent time periods (Figure 12g)

## Charts of suicide

The suicide rate has gradually increased since 2006-08. There are wide inequalities, with the mortality rate for males over 3 times higher than for females.

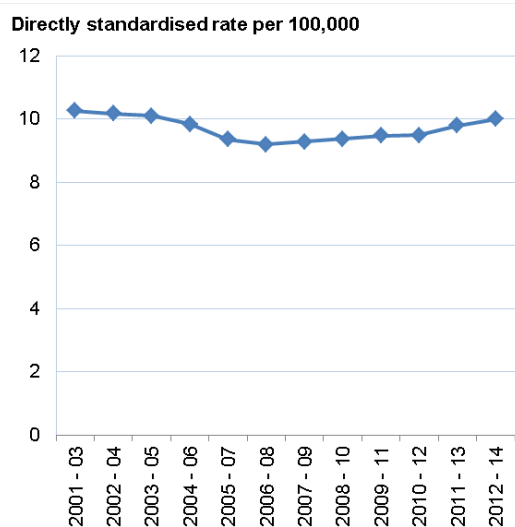


Figure 12a: England, 2001-03 to 2012-14.

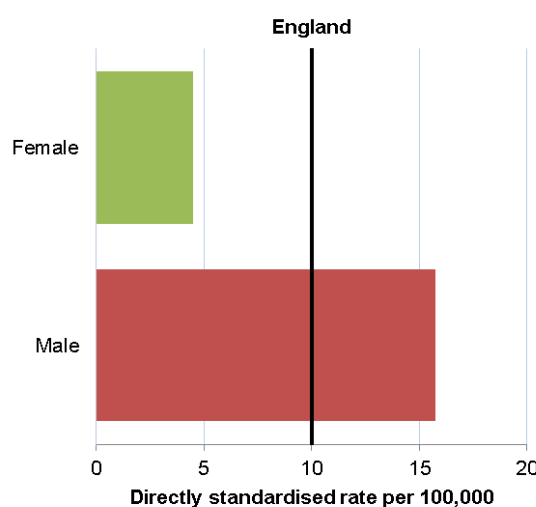


Figure 12b: England, 2012-2014.

Source: Public Health Outcomes Framework.

<sup>vi</sup> The resulting measures, the slope index of inequality and the relative index of inequality represent the difference in mortality rates between the most and least deprived areas. See Appendix 2 for further details of these summary measures.

There is variation in the percentage of people reporting self-harm, suicide attempts and suicidal thoughts by ethnic group, with the White British group reporting the highest levels.

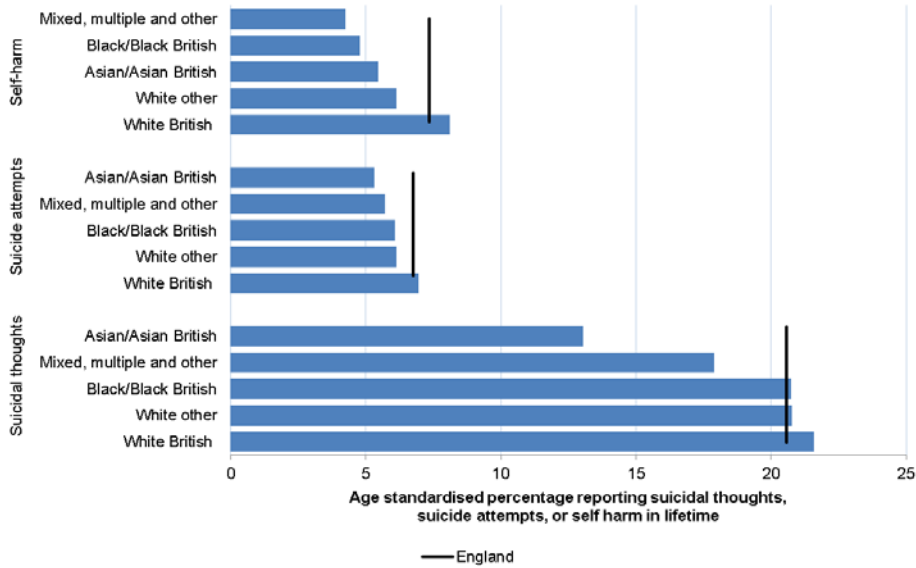


Figure 12c: England, 2014.

Source: Adult Psychiatric Morbidity Survey.<sup>2</sup>

There are wide inequalities in suicide rates by country of birth, with the highest mortality from suicide in those born in EU accession countries for males and in Scotland for females.



Figure 12d: Deaths to England residents in England, males 10+ years, 2011-13.

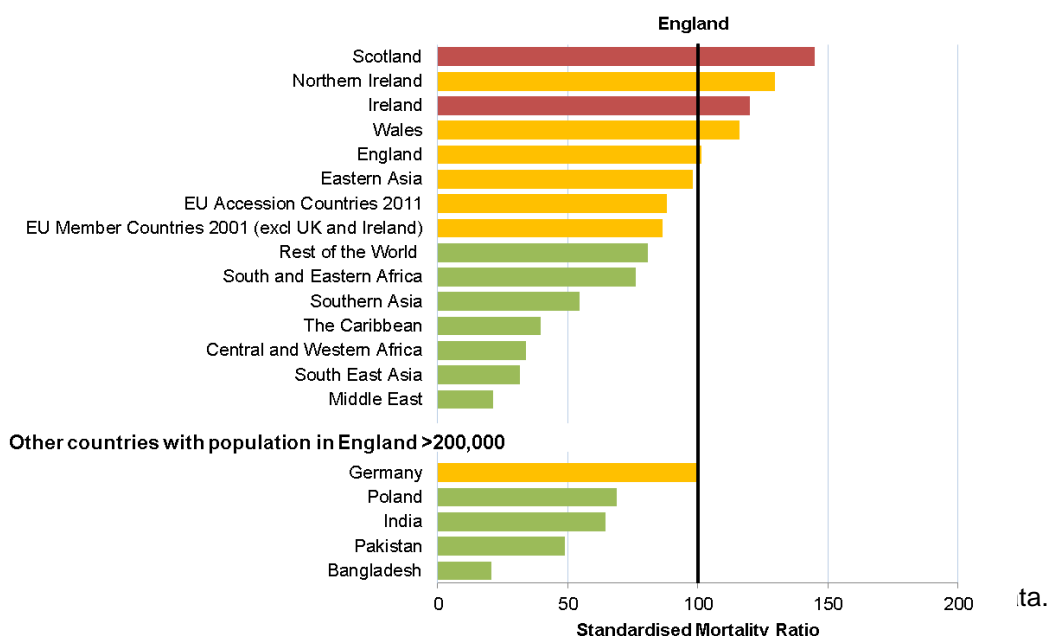


Figure 12e: Deaths to England residents, females 10+ years, 2011-13.

Source: PHE analysis of ONS death registration data and 2011 Census population data.



The mortality rate from suicide is twice as high in the most deprived areas of England compared with the least deprived areas. There has been a general pattern of narrowing absolute and relative inequality since 2001-03, although in recent time periods absolute inequality has widened and relative inequality has remained constant.

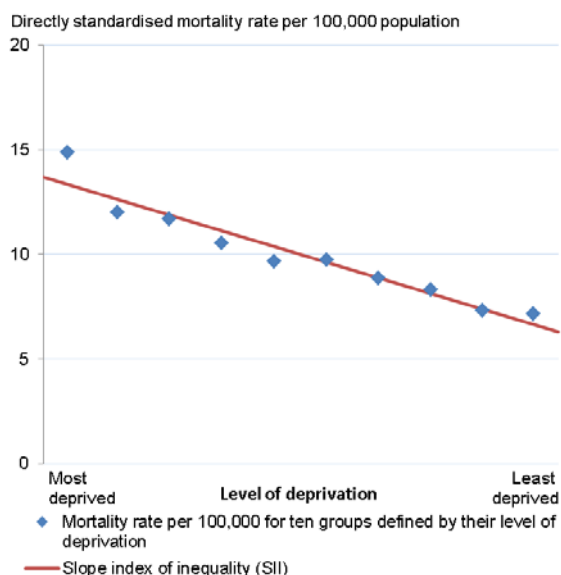


Figure 12f: Persons, England, 2012-14.

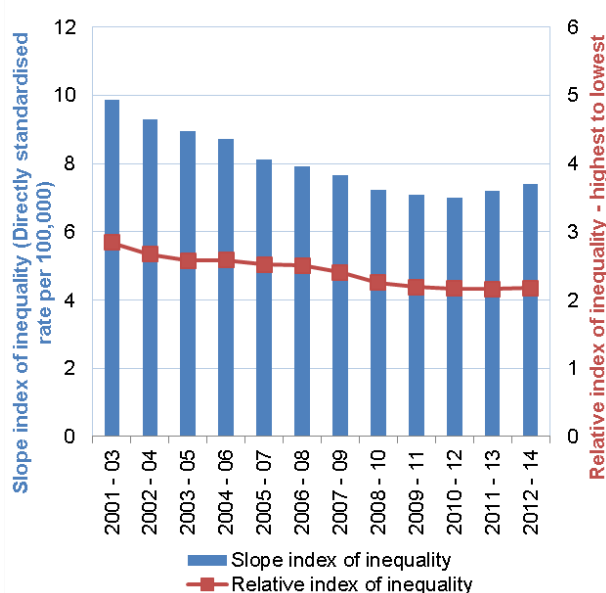


Figure 12g: Persons, England 2001-03 to 2012-14.

Source: PHE analysis of ONS data.

## References

1. Public Health England. 2014. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
2. NHS Digital. 2016. Adult Psychiatric Morbidity Survey: Survey of Health and Wellbeing, England, 2014. Available from: [content.digital.nhs.uk/catalogue/PUB21748](http://content.digital.nhs.uk/catalogue/PUB21748) [Accessed 21 June 2017].

# Indicator 13 – Self-reported wellbeing – low life satisfaction

## Definition

The percentage of adults aged 16 and over reporting a low level of life satisfaction.<sup>i</sup>

Inequalities are examined by sex, age, ethnic group, employment status and health status. The indicators used to measure inequality are:

- mean deviation (ethnic group)
- absolute and relative difference (sex, age, employment status, health status)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

## Rationale for inclusion

Subjective wellbeing, people's thoughts and feelings about their own quality of life is an important aspect of national wellbeing. In England, the percentage of people reporting low levels of life satisfaction has decreased year on year between 2011/12 and 2014/15. However, almost 5% of people still reported low life satisfaction in 2014/15.<sup>1</sup> People with higher wellbeing have lower rates of illness, recover more quickly and generally have better physical and mental health.<sup>2</sup>

## Inequalities

### Sex and age

- there was no significant difference in low life satisfaction between males and females in 2014/15, but there was considerable variation between age groups
- in 2014/15, low life satisfaction was reported by a significantly higher percentage of 45-59 year olds compared with the England average. The 50-54 year old age group reported the highest levels of low life satisfaction (7.8%) (Figure 13a)

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<sup>i</sup> Respondents to the Annual Population Survey scoring 0-4 to the question 'Overall, how satisfied are you with your life nowadays'. Responses are given on a scale of 0-10 (where 0 is 'not at all satisfied' and 10 is 'completely satisfied').

## Ethnic group

- there was considerable variation in the reported levels of low life satisfaction by ethnic group, with people in the Black ethnic group more than twice as likely to report low life satisfaction than those in the Asian ethnic group<sup>ii</sup> (Figure 13b)
- this inequality can be summarised by measuring the difference in life satisfaction between each ethnic group and the largest ethnic group (White).<sup>iii</sup> The average of these differences was 1.8 percentage points in 2014/15

## Employment status

- low life satisfaction varies according to employment status. In 2014/15, those in employment were least likely to report low life satisfaction. Amongst the economically inactive group,<sup>iv</sup> self-reported low life satisfaction was twice as high as in the employed group, and amongst the unemployed, low life satisfaction was four times higher than the employed group (Figure 13c)
- the summary measure of inequality, based on the average of differences between each group and the largest group (employed) was 6.7 percentage points in 2014/15

## Health status

- low life satisfaction varies considerably by health status. Those who reported very bad health were almost twenty five times more likely to report low life satisfaction than those who reported very good health in 2014/15 (Figure 13d)

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<sup>ii</sup> Data are presented for broad ethnic groups, which may mask considerable inequality within the group.

<sup>iii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iv</sup> The economically inactive group includes those who are not in work but are not unemployed, such as those who are long term sick or disabled, those looking after family, students and retired people.

### Charts of self-reported low life satisfaction

There are wide inequalities in self-reported low life satisfaction. People aged between 45 and 59, those in the Black ethnic group, the unemployed and economically inactive, and those whose health status was fair, bad, or very bad all reported higher levels of low life satisfaction than England as a whole.

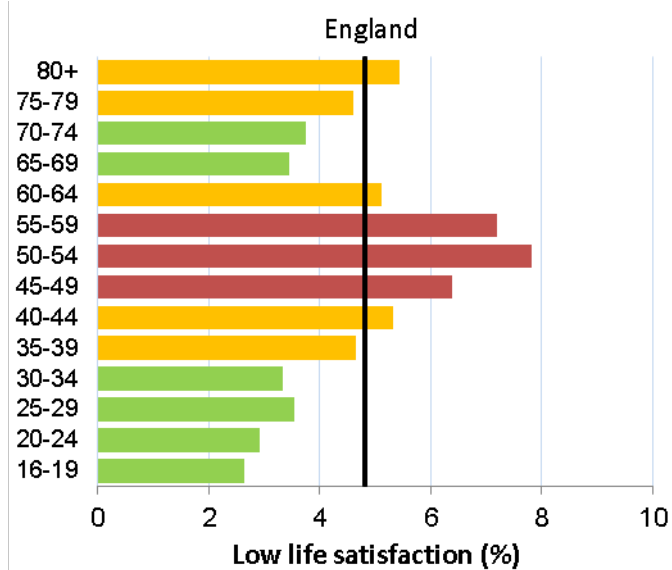


Figure 13a: Age group, England, 2014/15.

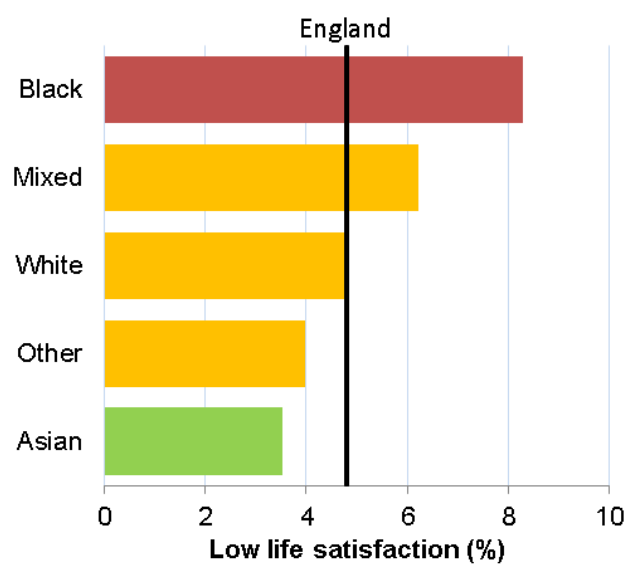


Figure 13b: Ethnic group, England 2014/15.



Figure 13c: Working status, England, 2014/15.

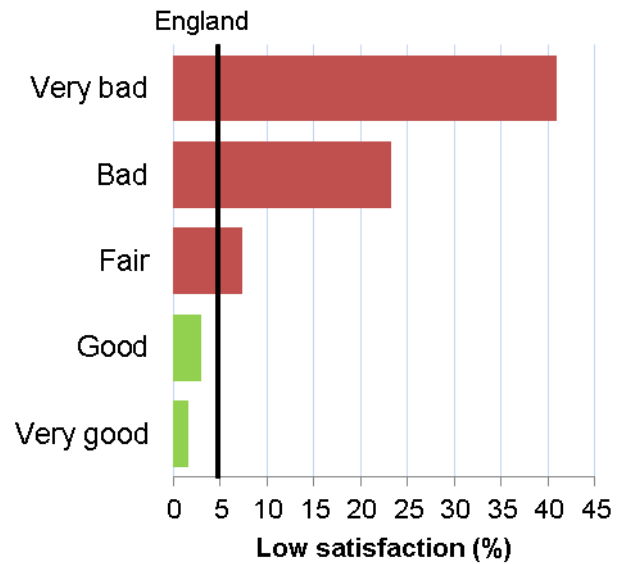


Figure 13d: Health status, England, 2014/15.

Source (All): Public Health Outcomes Framework.

## References

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## Indicator 14 – Children in low income families (all dependent children under 20)

### Definition

The percentage of dependent children aged under 20 living in households where income is less than 60 per cent of median household income before housing costs.

Inequalities are examined by ethnic group and deprivation. The indicators used to measure inequality are:

- mean deviation (ethnic group)
- absolute difference (deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

Child poverty is an important issue for public health. The Marmot Review<sup>1</sup> (2010) suggests there is evidence that childhood poverty leads to premature mortality and poor health outcomes for adults.

In 2014, 19.9% of children under the age of 20 lived in low income families.<sup>2</sup> This percentage reduced year on year between 2009 and 2013, but increased in 2014.<sup>i</sup> Reducing the numbers of children who experience poverty should improve adult health outcomes.

### Inequalities

#### Ethnic group<sup>ii</sup>

- there are higher proportions of children from certain Black and Minority Ethnic groups living in low-income families than is the case for children in White British families. In 2015/16 within the UK, for children where the head of the family

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<sup>i</sup> Based on HM Revenue and Customs data used in the Public Health Outcomes Framework data tool. This differs from the Households Below Average Income (HBAI) data, which is the definitive measure of low income at national level, but HMRC data provides lower-level geographical analysis.

<sup>ii</sup> Information about ethnicity is not included in the Public Health Outcomes Framework data for this indicator. However, the Department for Work and Pensions produce data for child poverty broken down by ethnicity for the United Kingdom as a whole.

identified as White, 16% were in relative poverty. This rose to 42% for Pakistani family heads, and 44% for Bangladeshi (Figure 14a)

- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White).<sup>iii</sup> The average of these differences is 13.8 percentage points

### Deprivation

- there is a clear association between children in low-income families and deprivation.
- this inequality can be summarised by examining children in low income families across all local authorities in England divided into ten groups defined according to their level of deprivation, and then comparing the most and least deprived groups.<sup>iv</sup> In 2014, the absolute gap between the most and least deprived areas was 21.0 percentage points (Figure 14b)
- however, the absolute gap between the most and least deprived has reduced since a high of 25.9 percentage points in 2007 (Figure 14c)

### Charts of children in low income families

Wide inequalities exist by ethnic group, with the highest proportion of children living in low income families in the Bangladeshi and Pakistani ethnic groups.

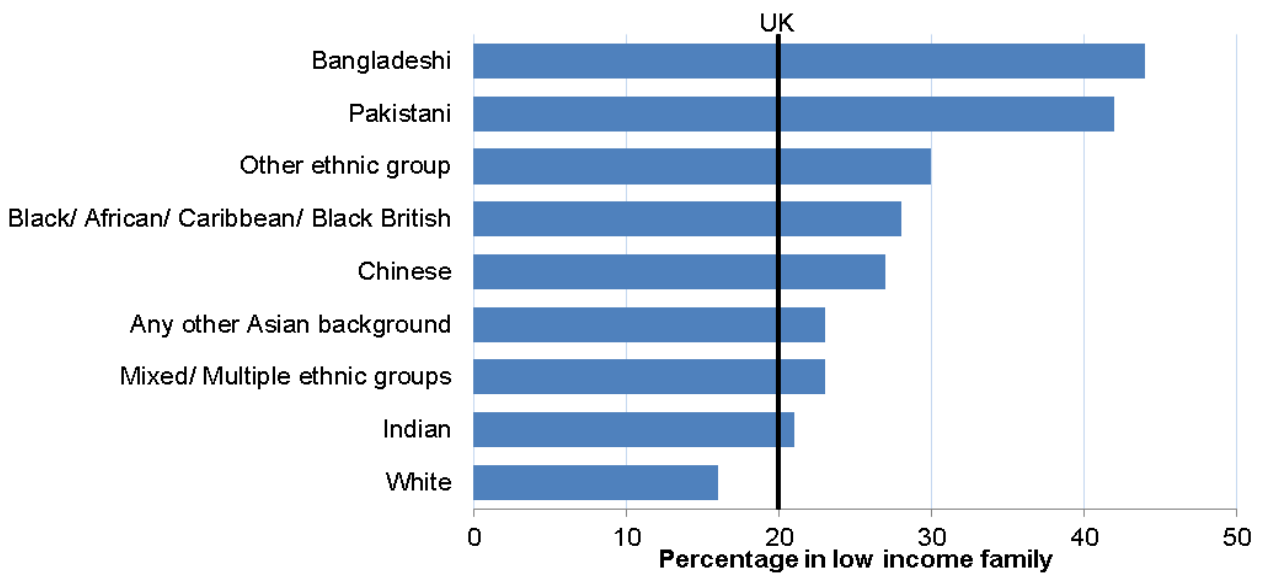


Figure 14a: United Kingdom, 2015/16.

Source: Family Resources Survey (three year average).<sup>3</sup>

<sup>iii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

<sup>iv</sup> Upper tier local authorities were grouped according to their level of deprivation. The slope index of inequality measure was not calculated as data were not available at a small enough geographical level to enable calculation in a consistent way to other indicators. See Appendix 2 for further details.

There are large inequalities in the proportion of children living in low-income families by deprivation. The absolute gap between the most and least deprived has reduced between 2007 and 2013. However, there was a widening in 2014. There has been little change in the relative gap in recent years.

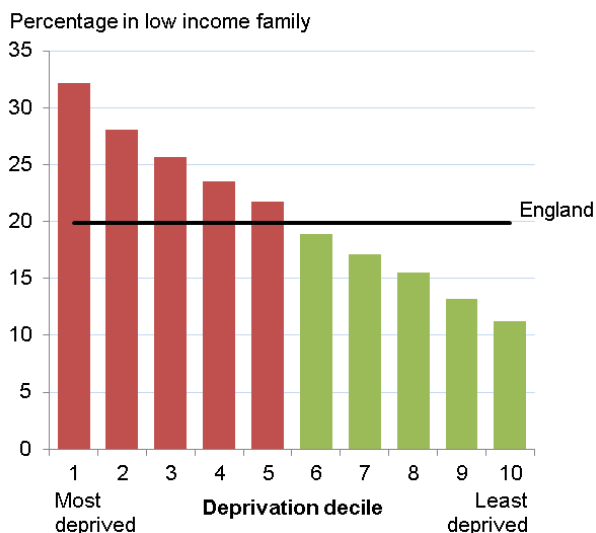


Figure 14b: Upper tier local authorities grouped according to their level of deprivation, England 2014.

Source: Public Health Outcomes Framework.

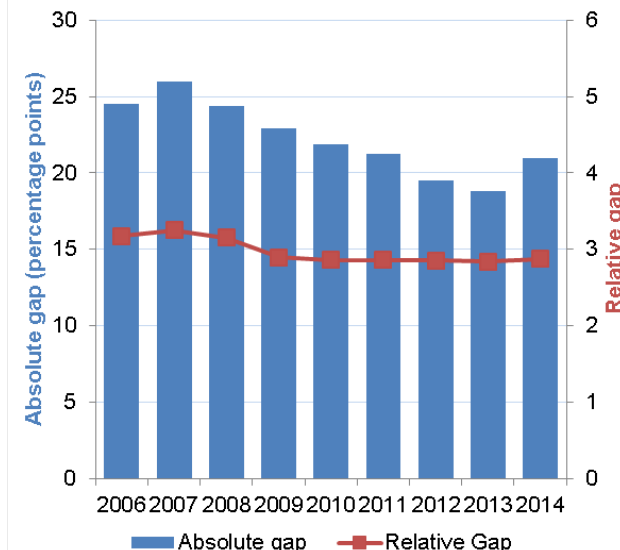


Figure 14c: England, 2006-2014.

Source: PHE analysis of HM revenue and customs data.

## References

1. The Marmot Review. 2010. Fair Society, Healthy Lives: Strategic Review of Health Inequalities in England post-2010. Available at: [www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review](http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review) [Accessed 21 June 2017].
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## Indicator 15 – Readiness for school

### Definition

The number of children not achieving a good level of development<sup>i</sup> at the end of reception (Early Years Foundation Stage) as a percentage of all eligible children. This indicator is the inverse of the readiness for school indicator in the Public Health Outcomes Framework.

Inequalities are examined by sex, ethnic group and deprivation. The indicators used to measure inequality are:

- mean deviation (ethnic group)
- absolute difference (sex, deprivation)

Descriptions of the methodology used for these can be found in [Appendix 2](#).

### Rationale for inclusion

This is a key measure of early years development across a wide range of developmental areas. Overall, in England there has been progressive improvement from 2012/13 to 2015/16. However, just under a third of children moving from Reception to Year One have been judged to be missing some of the key skills defined as requirements for commencement of the Key Stage 1 curriculum (Figure 15a). Children from poorer backgrounds are more at risk of poorer development and the evidence shows that differences by social background emerge early in life.<sup>1</sup>

This indicator is related to PHE's priority to give every child the best start in life.<sup>2</sup>

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<sup>i</sup> Defined as achieving at least the expected level in the early learning goals in the prime areas of learning (personal, social and emotional development; physical development; and communication and language) and the early learning goals in the specific areas of mathematics and literacy.

## Inequalities

### Sex

- there is significant inequality between boys and girls in school readiness. In England in 2015/16, there was a 15 percentage point gap between the sexes, with 37.9% of boys not ready for school compared with 23.2% of girls

### Ethnic group

- there are large variations by ethnic group. Children in Gypsy/Roma and Traveller of Irish Heritage ethnic groups were more than twice as likely to not be ready for school compared with England as a whole (Figure 15b)
- this inequality can be summarised by measuring the difference between each ethnic group and the largest ethnic group (White British).<sup>ii</sup> The average of these differences is 8.7 percentage points

### Deprivation

- where free school meal status is used as a proxy measure for level of deprivation, a significant gap in school readiness is evident at the end of Reception. For children without free school meals, 28.3% were not ready for school in 2015/16, while 45.6% of children with free school meals were in the same position, a gap of 17.3 percentage points (Figure 15c). However, this gap has reduced from 19.0 percentage points when the indicator was introduced in 2012/13

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<sup>ii</sup> See Appendix 2 for further details of this summary measure of mean deviation.

## Charts of school readiness

The proportion of children not ready for school at the end of reception has declined between 2012/13 and 2015/16.

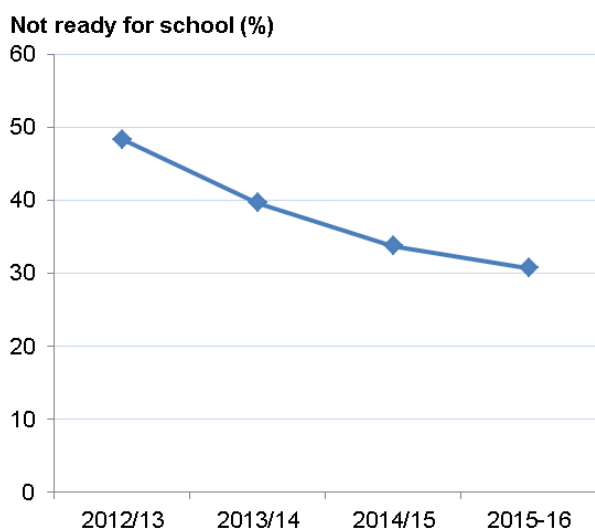


Figure 15a: England, 2012/13 to 2015/16.

Source: Public Health Outcomes Framework.

Wide inequalities between ethnic groups are present, with more than twice the proportion of children in the Gypsy/Roma and Traveller of Irish Heritage groups not being ready for school compared with the England average.

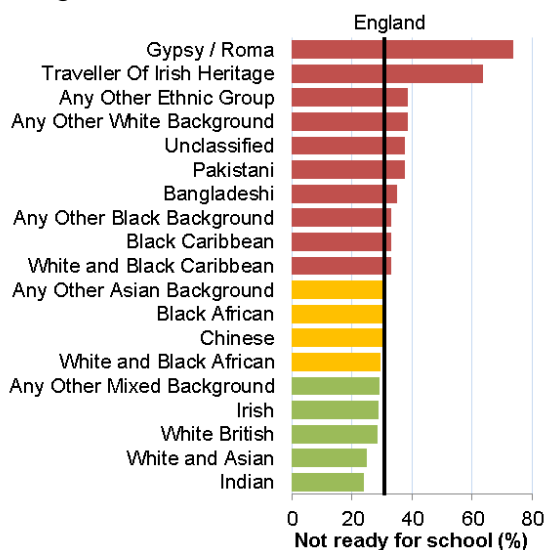


Figure 15b: England, 2015/16.

Source: Department for Education, Early Years Foundation Stage profile attainment by pupil characteristics<sup>3</sup>, England 2016.

Children with free school meals, a proxy for deprivation, are significantly less likely to be ready for school than children in England as a whole.

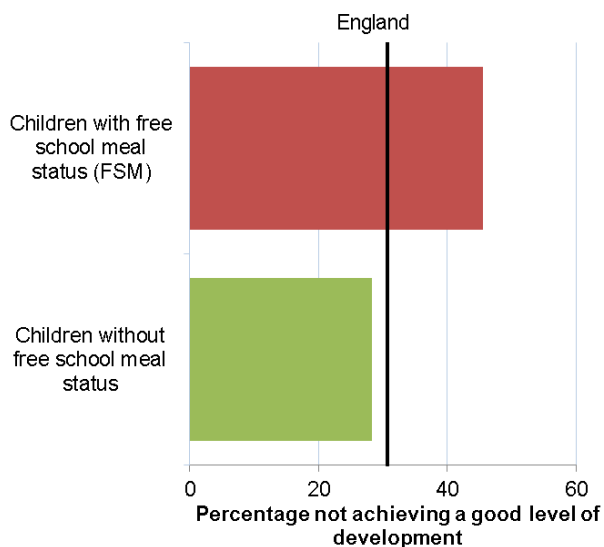


Figure 15c: England, 2015/16.

Source: PHE analysis of Department for Education data.

## References

1. Public Health England. 2017. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
2. Public Health England. 2014. From Evidence into action: opportunities to protect and improve the nation's health. Available from: [www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health](http://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health) [Accessed 21 June 2017].
3. Department for Education. 2016. Early Years Foundation Stage profile results 2014-2015. Statistics, Early Years Foundation Stage profile. Available at: [www.gov.uk/government/statistics/early-years-foundation-stage-profile-results-2014-to-2015](http://www.gov.uk/government/statistics/early-years-foundation-stage-profile-results-2014-to-2015) [Accessed 21 June 2017].

# Indicator 16 – Young people not in employment, education or training

## Definition

The estimated number of 16 to 18 year olds not in education, employment or training as a percentage of all 16 to 18 year olds.<sup>i</sup>

Inequalities are examined by ethnic group and deprivation, but only limited data are available by ethnicity. The only indicator used to measure inequality is therefore:

- absolute difference (deprivation)

Descriptions of the methodology used for this can be found in [Appendix 2](#).

## Rationale for inclusion

Young people who are not in education, employment or training (NEET) are at greater risk of a range of negative outcomes, including poor health, depression or early parenthood. The indicator is included to encourage services to work together to support young people, particularly the most vulnerable, to engage in education, training and work.<sup>1</sup>

Legislation was introduced in 2013 which required all young people to remain in some form of education or training until the end of the academic year in which they turned 17. This threshold rose to 18 in 2015. In 2015, a little over 4% of people aged between 16 and 18 were not in education, employment, or training according to aggregated local authority data.<sup>ii</sup> The proportion of 16 to 18 year olds who are NEET has progressively declined in England since 2011 (Figure 16a).

## Inequalities

### Ethnic group

- there is only limited data available on the characteristics of 16 to 18 year olds who are NEET. The Longitudinal Study of Young People in England (2010)<sup>2</sup> examined the characteristics of 19 year olds who are NEET. It found that being a

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<sup>i</sup> Based on local authority tracking data, where status is known. This differs from the data used in the official national estimates of NEET but allows local authority breakdowns.

<sup>ii</sup> Note that official national estimates of NEET in England also show falling NEET over this period, but the estimate of NEET at end 2015 is higher, at 6.5%.

member of the Black Caribbean, Pakistani, Bangladeshi or Mixed ethnic groups was one of the key risk factors for young people becoming NEET post-compulsory education. It should be noted that these data were collected prior to the 2013 change in legislation to raise the education participation age

### Deprivation

- a higher proportion of young people who were not in education, employment or training lived in more deprived areas compared with less deprived areas. In 2015, there was a 2.1 percentage point gap between the most and least deprived (Figure 16b). This absolute gap has narrowed since 2011
- eligibility for free school meals, a proxy measure for deprivation, was found to be a risk factor for being NEET in the Longitudinal Study of Young People in England (2010)<sup>2</sup>

## Charts of young people not in education, employment or training

Although the proportion of 16 to 18 year olds not in education, employment or training (NEET) has fallen since 2011, large inequalities remain. Those in the more deprived areas are more likely to be NEET than those in the least deprived areas.

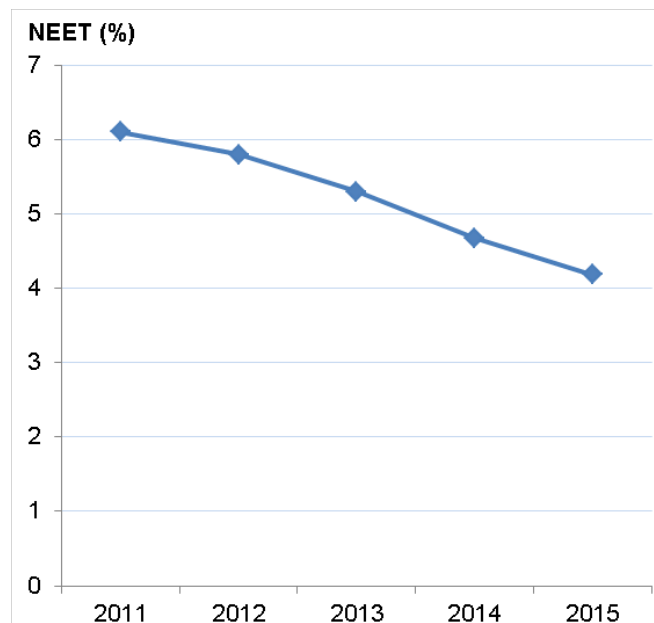


Figure 16a: England, 2011 to 2015, based on aggregated local authority data.

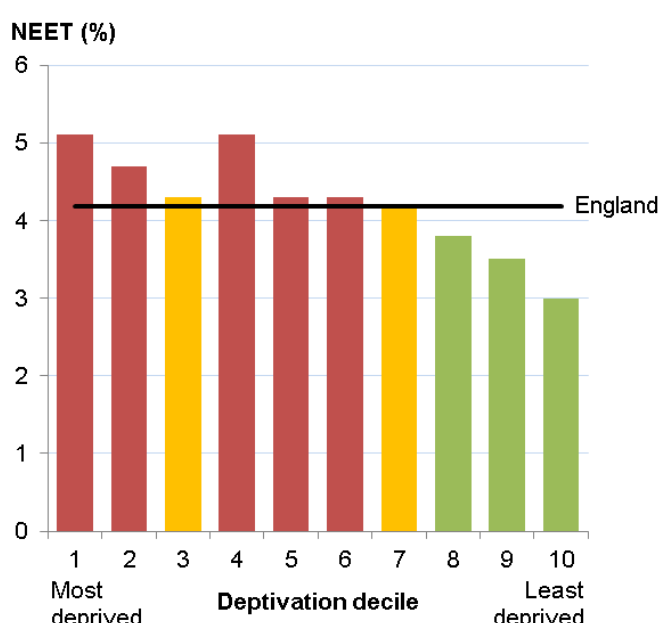


Figure 16b: Upper tier local authorities grouped according to their level of deprivation, England, 2015.

Source: Public Health Outcomes Framework.

## References

1. HM Government. 2011. Building engagement, building futures: Our strategy to maximise the participation of 16-24 year olds in education, training and work. Available at: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/300215/Building\\_Engagement\\_\\_Building\\_Futures.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300215/Building_Engagement__Building_Futures.pdf) [Accessed 21 June 2017].
2. Department for Education. 2011. Longitudinal study of young people in England. Available at: [www.gov.uk/government/statistics/youth-cohort-study-and-longitudinal-study-of-young-people-in-england-the-activities-and-experiences-of-19-year-olds-2010](http://www.gov.uk/government/statistics/youth-cohort-study-and-longitudinal-study-of-young-people-in-england-the-activities-and-experiences-of-19-year-olds-2010) [Accessed 21 June 2017].

## Indicator 17 – Employment gap for those with a long-term condition

### Definition

The gap between the percentage of people with a long-term condition who are employed and the percentage of the whole population who are employed.<sup>i</sup>

This indicator measures inequality between those with a long term condition and the whole population. No further inequality data are available for this indicator. However, inequalities are examined by ethnic group for employment for the population as a whole.

### Rationale for inclusion

The review 'Is work good for your health and wellbeing'<sup>1</sup> concluded that work was generally good for both physical and mental health and wellbeing. The 'Work, health and disability green paper: improving lives', states that 4.6 million disabled people and people with long-term health conditions are out of work, and that those who are unemployed have higher rates of mortality, and a lower quality of life.<sup>2</sup>

There was an 8.6 percentage point gap in the employment rate between people with a long term health condition and the overall population in 2014/15. This figure was unchanged from 2013/14.<sup>3</sup>

### Inequalities

#### Ethnic group

- no data are available on the gap in employment between those with long-term conditions and the population as a whole by ethnic group. However, the employment rate for the population as a whole shows that there are wide inequalities between ethnic groups. Just over half of respondents to the Labour Force Survey in the Pakistani/Bangladeshi ethnic group reported being employed, compared with almost three quarters of respondents in the White ethnic group (Figure 17a)

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<sup>i</sup> The indicator is the percentage point gap between these two groups, based on respondents to the Labour Force Survey aged 16-64.



## Charts of employment

There are considerable inequalities between ethnic groups in the employment rate for the population of England as a whole, with the Pakistani/Bangladeshi ethnic group having the lowest levels of employment.

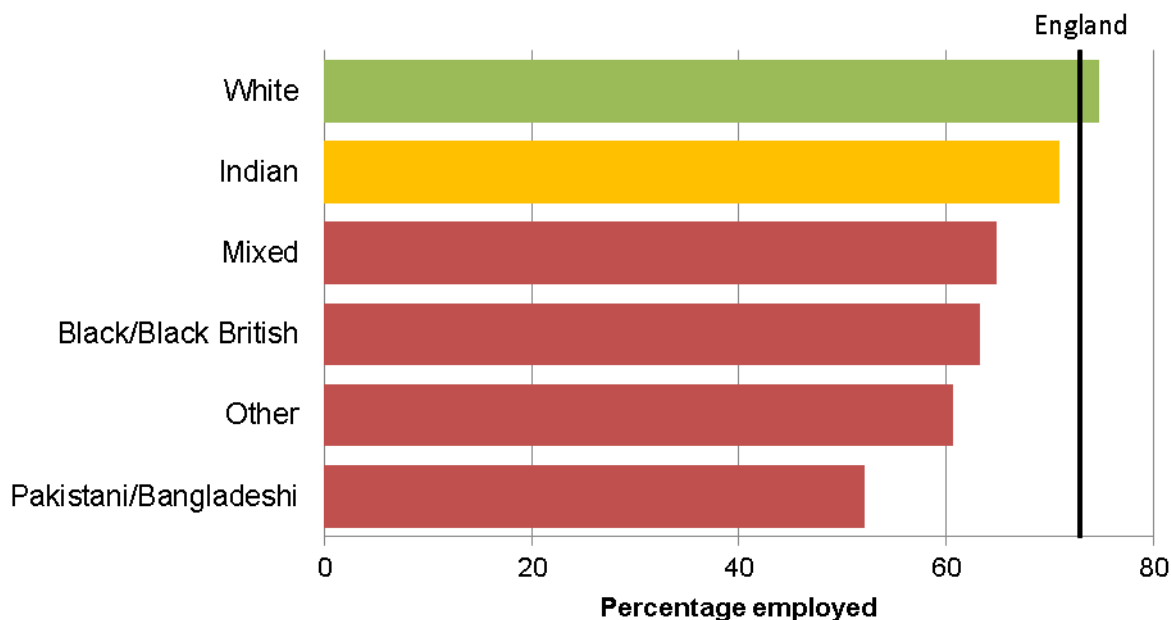


Figure 17a: Age 16-64, England, 2014/15.

Source: Nomis/Labour Force Survey.

## References

1. Waddell G and Burton A. 2006. Is work good for your health and wellbeing? Available at: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/214326/hwb-is-work-good-for-you.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214326/hwb-is-work-good-for-you.pdf) [Accessed 21 June 2017].
2. Department for Work and Pensions, Department of Health. 2016. Work, health and disability green paper: improving lives. Available at: [www.gov.uk/government/consultations/work-health-and-disability-improving-lives/work-health-and-disability-green-paper-improving-lives#tackling-a-significant-inequality--the-case-for-action](http://www.gov.uk/government/consultations/work-health-and-disability-improving-lives/work-health-and-disability-green-paper-improving-lives#tackling-a-significant-inequality--the-case-for-action) [Accessed 21 June 2017].
3. Public Health England. 2014. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].

## Indicator 18 – Homelessness

### Definition

Eligible homeless people who are assessed by their local authority but deemed to be not in priority need, crude rate per 1,000 estimated total households.<sup>i</sup>

There are no data available on inequalities for this indicator. However, some information is available on the demographic characteristics of homeless people in the Homeless Link Health Needs Audit, and are presented below, by sex, age, and ethnic group. Data were not sufficiently detailed to calculate any inequality measures.

### Rationale for inclusion

Homelessness is associated with severe poverty and is a social determinant of health. The homeless group as a whole experiences considerable health inequality. The Homeless Link Health Needs Audit, reports that 78% of homeless respondents reported a physical health problem and 86% a mental health difficulty.<sup>1</sup>

This indicator measures the rate of homeless people presenting themselves to their local authority who are deemed to be not in priority need. In 2014/15 there were almost 20,500 people in this category, a rate of 0.9 people per 1,000 households.<sup>2</sup> Many of this group will be single people, who may live in supported accommodation such as hostels or housing projects, sleep rough, 'sofa surf', or live in squats.<sup>3</sup> The number and rate of eligible homeless people deemed to be not in priority need has not significantly changed between 2011/12 and 2014/15.

Inequality in health and the social determinants of health can be both a cause and an outcome of homelessness.<sup>3</sup>

### Inequalities

#### Sex and age

- some information on the sex and age breakdown of the homeless population is included in the Homeless Link Health Needs Audit<sup>1</sup>, which has been running since 2011 and includes information collected in 27 local authority Health Needs

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<sup>i</sup> Priority need as defined in the Housing Act (1996) Part VII, includes pregnant women, those with dependent children, those vulnerable as a result of old age, mental illness or disability, and those homeless because of an emergency such as fire, flood or other disaster.

Audits across the country.<sup>ii</sup> The audit reported a gender split of 71% male to 29% female amongst respondents, and the highest proportion of respondents were young people in the 18 to 25 age group (Figure 18a)

### Ethnic group

- the Homeless Link Health Needs Audit<sup>1</sup> reported that 89% of respondents were from the White ethnic group. Numbers were not sufficiently large to report a more detailed breakdown of other ethnic groups. 93% of respondents were UK residents

### Charts of homelessness

Although there is very limited information on the characteristics of the homeless population, the Homeless Link Audit showed that ages 18 to 25 were most common amongst homeless respondents.

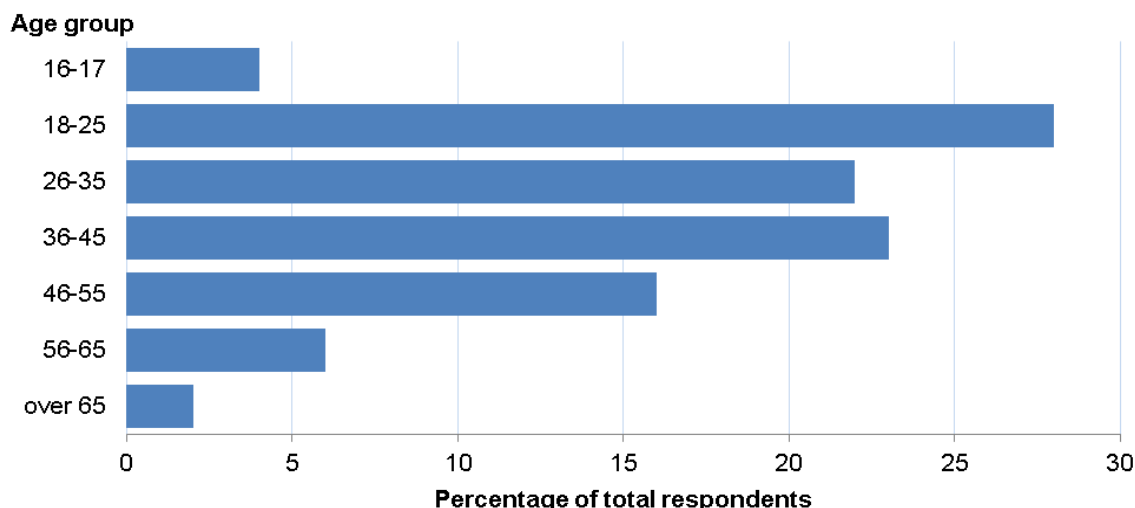


Figure 18a: England, 2011-15.

Source: Homeless Link Health Needs Audit.

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<sup>ii</sup> It should be noted that the results of the audit are based on a small sample of just over 3,000 respondents.

## References

1. Homeless Link. Health Needs Audit: Explore the data. Available from: [www.homeless.org.uk/facts/homelessness-in-numbers/health-needs-audit-explore-data](http://www.homeless.org.uk/facts/homelessness-in-numbers/health-needs-audit-explore-data) [Accessed 21 June 2017].
2. Public Health England. 2014. Public Health Outcomes Framework. Available from: [www.phoutcomes.info/](http://www.phoutcomes.info/) [Accessed 21 June 2017].
3. Homeless Link. 2015. Single homelessness support in England: Annual Review. Available from: [www.homeless.org.uk/sites/default/files/site-attachments/Full%20report%20-%20Single%20homelessness%20support%20in%20England%202015.pdf](http://www.homeless.org.uk/sites/default/files/site-attachments/Full%20report%20-%20Single%20homelessness%20support%20in%20England%202015.pdf) [Accessed 21 June 2017].

# Appendix 1: Health Equity Dashboard (March 2017)<sup>i</sup>

1 OUTCOMES							
	Measure	Baseline Value	Reporting period Value		Baseline v Reporting period Trend and significance		England Range Latest data period (range measures only)
			Value	Value	Trend	Absolute change	
<b>Core, overarching health outcomes</b>							
1.1	Life expectancy at birth - males	Years of life	(2011-13) 79.4	(2012-14) 79.5	✓	0.1	
		SII	9.1	9.2	X	0.1	
	Life expectancy at birth - females	Years of life	(2011-13) 83.1	(2012-14) 83.2	✓	0.1	
		SII	6.9	7.0	X	0.1	
1.2	Healthy life expectancy at birth - males	Years of life	(2011-13) 63.3	(2012-14) 63.4	✓	0.1	
		SII	19.2	19.0	✓	-0.2	
	Healthy life expectancy at birth - females	Years of life	(2011-13) 63.9	(2012-14) 64.0	✓	0.1	
		SII	19.5	20.2	X	0.7	
1.3	CVD mortality under 75 years	DSR per 100,000	(2011-13) 77.8	(2013-15) 74.6	✓	-3.2	
		SII	106.4	106.1	✓	-0.3	
1.4	Cancer mortality under 75 years	DSR per 100,000	(2011-13) 144.4	(2013-15) 138.8	✓	-5.6	
		SII	104.9	104.2	✓	-0.7	
1.5	Infant mortality	Rate per 1,000	(2011-13) 4.1	(2013-15) 3.9	✓	-0.2	
		SII	3.4	3.1	✓	-0.3	
<b>Inequalities in the PHE Priorities</b>							
1.6	Low birth weight of term babies	Per cent	(2011-13) 2.8	(2013-15) 2.8	—	0.0	
		SII	2.1	2.1	—	0.0	
1.7	Tooth decay in children aged 5	Per cent		(2014/15) 24.7			
		SII		25.9			
1.8	Child excess weight in 4-5 year olds	Per cent	(2013/14) 22.5	(2015/16) 22.1	✓	-0.4	
		SII	8.9	9.8	X	0.9	
		Mean Deviation (Ethnic group)	3.6	3.7	X	0.1	
		Per cent	(2013/14) 33.5	(2015/16) 34.2	X	0.7	
	Child excess weight in 10-11 year olds	SII	15.8	18.1	X	2.3	
		Mean Deviation (Ethnic group)	6.6	6.8	X	0.2	
		DSR per 100,000	(2012/13) 636.9	(2014/15) 640.8	X	3.9	
		SII	597.6	566.3	✓	-31.3	
1.10	Smoking prevalence	Per cent	(2013) 18.4	(2015) 16.9	✓	-1.5	
		Inequality Range (NS-SEC)	10.1	9.6	✓	-0.5	All: 16.9% Routine & manual: 26.5%
		Mean Deviation (Sexual orientation)	3.6	4.5	X	0.9	
1.11	Incidence of TB	Incidence rate	(2011-13) 14.7	(2013-15) 12.0	✓	-2.7	
		Inequality Range (Deprivation)	20.4	15.3	✓	-5.1	Decile 1: 21.8 per 100,000 Decile 10: 6.5 per 100,000
1.12	Suicide rate	DSR per 100,000	(2011-13) 9.8	(2013-15) 10.1	X	0.3	
		SII	7.2	7.3	X	0.1	
1.13	Self reported wellbeing - satisfaction (%)	Per cent	(2013/14) 5.6	(2015/16) 4.6	✓	-1.0	
		Mean deviation (Working status)	7.1	5.9	✓	-1.2	
<b>Social determinants of health and health inequalities</b>							
1.14	Children in low income families under 20 yrs (%)	Per cent	(2012) 18.6	(2014) 19.9	X	1.3	
		Inequality Range (Deprivation)	19.5	21.0	X	1.5	Decile 1: 32.2% Decile 10: 11.2%
1.15	Readiness for school	Per cent	(2012/13) 48.3	(2015/16) 30.7	✓	-17.6	
		Inequality Range (Free school meal status)	19.0	17.3	✓	-1.7	Non FSM: 28.3% FSM: 45.6%
1.16	Young people not in employment, education or training	Per cent	(2014) 4.7	(2015) 4.2	✓	-0.5	
		Inequality Range (Deprivation)	2.6	2.1	✓	-0.5	Decile 1: 5.1% Decile 10: 3.0%
1.17	Employment rate gap for those with long-term condition	Inequality Range (Health status)	(2013/14) 8.6	(2015/16) 8.8	X	0.2	
1.18	Statutory homelessness - Eligible homeless people not in priority need	Per 1,000 households	(2012/13) 0.9	(2015/16) 0.9	—	0.0	

**Legend**  
 ✓ Better than baseline    — No change from baseline    X rse than baseline    Green - Significantly better    Red - Significantly worse  
 Amber - No significant change    Black - No significance could be calculated

**Measures**  
**Slope Index of Inequality (SII)**  
 The SII is a measure of the social gradient in the indicator, i.e. how much the indicator varies with deprivation. It takes account of health inequalities across the whole range of deprivation within England and summarises this in a single number. The indicator is calculated for each national deprivation decile based on Lower Super Output Areas (LSOAs). The slope index of inequality (SII) is then calculated based on these figures. This represents the range across the social gradient from most to least deprived, based on a statistical analysis of the relationship between the indicator and deprivation across all deprivation deciles.  
**Inequality range**  
 The inequality range measures the absolute difference between two groups. This may be between a specific population group and the national average, or between two independent population groups. The interpretation text specifies, for each indicator, which groups were considered in order to calculate the inequality measure.  
**Mean deviation**  
 The mean deviation presents a summary measure of inequality for dimensions which contain a number of population groups which cannot be ordered. This includes indicators by ethnic group and sexual orientation. The measure shows the average of the absolute differences between each of the groups and a reference group. The largest group was selected as the reference group for each indicator. The interpretation text specifies, for each indicator, the reference group used.

**Data sources and additional metadata**  
 Throughout the dashboard, Index of Multiple Deprivation 2015 has been used for deprivation measures unless otherwise stated below.  
 1.1. Analysis by Public Health England Epidemiology and Surveillance Team based on Office for National Statistics data. IMD2010 used for deprivation (PHOF 0.1ii, 0.2i) 1.2. Office for National Statistics. IMD2010 used for deprivation (PHOF 0.1i, 0.2v). 1.3-1.6. Analysis by Public Health England Epidemiology and Surveillance Team based on Office for National Statistics data (Note - indicator 1.5 is based on deaths which were registered in the period, whereas the PHOF indicator shows deaths which occurred during the period) (PHOF 4.04i, 4.05i, 4.01i, 2.01i). 1.7. Analysis by Public Health England Epidemiology and Surveillance Team based on Dental Public Health Epidemiology Programme for England (Note - indicator 1.7 is the inverse PHOF 4.02). 1.8. Analysis by Public Health England Epidemiology and Surveillance Team based on National Child Measurement Programme data (PHOF 2.06i, 2.06ii). 1.9. Analysis by Public Health England Epidemiology and Surveillance Team based on Hospital Episode Statistics (HES) and population data from ONS (PHOF 2.18). 1.10. Analysis by Public Health England Epidemiology and Surveillance Team based on Annual Population Survey (APS) data (PHOF 2.14). 1.11. Analysis by Public Health England Epidemiology and Surveillance Team based on Enhanced Tuberculosis Surveillance System data. 1.12. Analysis by Public Health England Epidemiology and Surveillance Team based on mortality and population data from ONS (PHOF 4.10 definition from August 2016). 1.13. Analysis by Public Health England Epidemiology and Surveillance Team based on Annual Population Survey data (PHOF 2.23i). 1.14. Analysis by Public Health England Epidemiology and Surveillance Team based on HM Revenue and Customs data. 1.15-1.16. Analysis by Public Health England Epidemiology and Surveillance Team based on Department for Education data (Note - indicator 1.15 is the inverse of the data for this indicator in the PHOF data tool) (PHOF 1.02i, 1.05). 1.17. Analysis by Public Health England Epidemiology and Surveillance Team based on Labour Force Survey data (PHOF 1.08i). 1.18. Public Health Outcome Framework (PHOF) based on Department for Communities and Local Government data (PHOF 1.15i).

<sup>i</sup> Reporting period included in the March dashboard are not consistent with this report for some indicators. For life expectancy and healthy life expectancy there was a change in definitions in May 2017 and the latest definitions are reflected in this report.

## Appendix 2: Methodology

### Indicator definitions

The 18 indicators presented in this report are all taken from the Public Health Outcomes Framework. More detailed metadata about the indicators and how they are constructed is available from the Public Health Outcomes Framework data tool:

[www.phoutcomes.info/](http://www.phoutcomes.info/)

### Measurement of inequality

There are a number of alternative methods of measuring health inequality. In this report we have aimed, as far as possible, to limit the number of summary measures used, in order to provide consistency between sections and to avoid confusion between different measures. The sub-sections below outline each of the methods in more detail.

Absolute measures of inequality have been used for all indicators within the dashboard. Where data was readily available, relative measures of inequality have also been included in this report.

Absolute inequality shows the magnitude of difference between subgroups of the population (most simply calculated by subtracting the value for one group from another), whereas relative inequality shows the proportional difference between subgroups (most simply calculated by dividing the value for one group by another). Eg If 30% of people smoke in Group A and 20% smoke in Group B then the absolute inequality between them is 10 percentage points and the relative inequality is 1.5, ie there are 1.5 times as many smokers in Group A as Group B.

Both absolute and relative measures are important indicators of inequality. However, they can lead to differing conclusions about the direction of change in inequality over time, depending on the trajectory of the indicator overall. Eg Using the example above, if smoking prevalence in Group A reduces to 24% and in Group B it reduces to 15% then the absolute inequality between them has narrowed to nine percentage points. However, the relative inequality between them has increased to 1.6 (24/15). Each measure has advantages and disadvantages, but used together they can provide a more complete picture of inequality.<sup>1</sup>

## Slope index of inequality and relative index of inequality

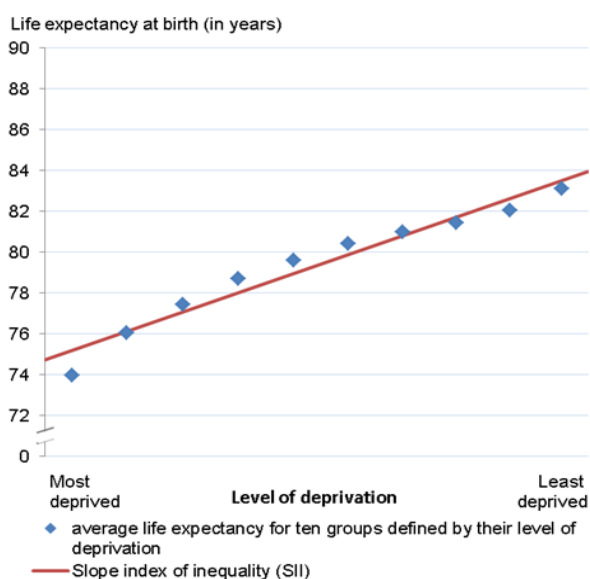
The slope index of inequality (SII) is used in the Public Health Outcomes Framework (PHOF) to measure inequality in life expectancy and healthy life expectancy. Where data were available, the same measure has been used throughout this report to measure inequality by deprivation.

The SII is a measure of the social gradient in an indicator, and shows how much the indicator varies with deprivation. It takes account of inequalities across the whole range of deprivation within England and summarises this into a single number. The measure assumes a linear relationship between the indicator and deprivation.

The calculation is illustrated below using Figure 1a from this report. Within England, the population has been divided by level of deprivation, based on the Index of Multiple Deprivation. This has been done by ranking small areas called Lower Super Output Areas (LSOAs) from most to least deprived. These have then been divided into 10 groups, or deprivation deciles, with approximately equal numbers of LSOAs in each. Decile 1 contains people living in the most deprived parts of England and Decile 10 contains people in the least deprived parts.

Life expectancy at birth has been calculated for each of these deciles, illustrated by the blue dots in Figure 1a. In the chart, the life expectancy figures have been plotted to take account of their population size. The red line on the chart is a linear regression line of best fit for the data. The SII is simply the gradient of that line, or the difference between the top of the line and the bottom. In the example in Figure 1a, this gives an SII of 9.2 years, which therefore represents the range in life expectancy across the social gradient, from most to least deprived.

Figure 1a



The relative index of inequality (RII) represents the proportional difference in the indicator across the social gradient from most to least deprived, and is calculated by dividing the value at the top of the line by the value at the bottom.

Further information on the slope index of inequality can be found in the PHOF overarching indicators technical user guide here:

[www.phoutcomes.info/further-information](http://www.phoutcomes.info/further-information)

A tool for calculating the SII and RII can be found here:

[fingertips.phe.org.uk/documents/PHE%20Inequalities%20Calculation%20Tool.xls](http://fingertips.phe.org.uk/documents/PHE%20Inequalities%20Calculation%20Tool.xls)

For all indicators using this method, the Index of Multiple Deprivation 2015 scores have been used to define deprivation groups.

Indicators calculated using this method:

- 1 – Life expectancy at birth
- 2 – Healthy life expectancy at birth
- 3 – CVD mortality under 75 years
- 4 – Cancer mortality under 75 years
- 5 – Infant mortality
- 6 – Low birthweight of term births
- 7 – Tooth decay
- 8 – Child excess weight
- 9 – Alcohol-related hospital admissions
- 12 – Suicide

For indicator 11 – Incidence of TB - incidence has been calculated for 10 deprivation groups based on LSOAs and the Index of Multiple Deprivation 2010 scores. However, no SII measure has been calculated for this indicator as the deprivation gradient is not linear.

### Mean deviation

Where the dimension of inequality being considered contains a number of population groups, which cannot be logically ordered, such as indicators by ethnic group or religion, a summary measure called the mean deviation has been presented.

The measure shows the average of the absolute differences between each of the groups and a reference group. Values are treated as positive whether they are higher or lower than the reference group. The largest group was selected as the reference group for each indicator, and the reference group has been stated in the commentary. No relative measure has been presented for these indicators.



Indicators calculated using this method:

- 5 – Infant mortality (ethnic group)
- 6 – Low birth weight of term births (ethnic group)
- 7 – Tooth decay (ethnic group)
- 8 – Child excess weight (ethnic group)
- 10 – Smoking prevalence (ethnic group, religion)
- 11 – Incidence of TB (ethnic group)
- 12 – Suicidal thoughts / suicide attempts / self-harm (ethnic group)
- 13 – Self-reported wellbeing (ethnic group, employment status)
- 14 – Children in low income families (ethnic group)
- 15 – Readiness for school (ethnic group)

## Range

Where two groups are being compared, simple range measures are used. Either the absolute range calculated by subtracting the lower value from the higher value, or the relative range, calculated by dividing the higher value by the lower value.

Indicators calculated using this method:

- 1 – Life expectancy (sex)
- 2 – Healthy life expectancy (sex)
- 3 – CVD mortality under 75 years (sex)
- 4 – Cancer mortality under 75 years (sex)
- 8 – Child excess weight (sex and age)
- 9 – Alcohol-related hospital admissions (sex)
- 10 – Smoking prevalence (socio-economic classification, sex)
- 11 – Incidence of TB (country of birth)
- 12 – Suicide (sex)
- 13 – Self-reported wellbeing (sex, age, health status)
- 15 – Readiness for school (sex, free school meal status)

For a small number of indicators, inequality by deprivation has been measured using a simple range measure rather than using the slope index of inequality and relative index of inequality measures detailed above. In these cases, data were not available at a small enough geographical level to define deprivation groups in a consistent way. So deprivation groups were defined by grouping upper tier local authorities into ten groups based on their level of deprivation, then calculating the absolute and relative inequality between the most and least deprived groups.

Indicators calculated using this method:

10 – Prevalence of smoking

14 – Children in poverty

16 – Young people not in employment, education or training

## Analysis of the distribution of ethnic groups by deprivation

Similarly to the slope index of inequality measure, described above, the population for each ethnic group (from the 2011 Census) has been divided into 10 groups, or deprivation deciles by ranking Lower Super Output Areas from most to least deprived using the Index of Multiple Deprivation 2015. Deciles with approximately equal numbers of LSOAs in each were then created. Decile 1 contains people living in the most deprived parts of England and Decile 10 contains people in the least deprived parts.

Table A1 below shows the percentage of the population in each ethnic group by deprivation decile, ordered by the percentage living in the most deprived group.

Table A1: Distribution of population for each ethnic group by deprivation decile, England, 2011

	Deprivation decile									
	Most deprived					Least deprived				
	1	2	3	4	5	6	7	8	9	10
<b>Pakistani</b>	30.9%	19.1%	14.8%	11.1%	7.5%	4.9%	3.7%	3.2%	2.5%	2.3%
<b>Bangladeshi</b>	27.9%	26.7%	16.6%	9.5%	6.1%	4.1%	3.0%	2.5%	2.0%	1.7%
<b>Other Black</b>	21.4%	24.7%	17.8%	12.1%	8.3%	5.6%	3.7%	2.8%	2.2%	1.5%
<b>Black African</b>	20.0%	25.1%	18.2%	11.7%	7.9%	5.5%	4.0%	3.1%	2.6%	1.9%
<b>Arab</b>	19.0%	15.3%	15.7%	11.7%	9.3%	8.3%	6.7%	5.3%	4.6%	4.0%
<b>White and Black Caribbean</b>	18.7%	17.8%	13.9%	11.4%	9.3%	7.5%	6.3%	5.8%	5.0%	4.4%
<b>Black Caribbean</b>	18.1%	22.7%	17.3%	13.3%	9.8%	6.4%	4.4%	3.3%	2.8%	2.0%
<b>White and Black African</b>	16.0%	17.6%	14.8%	11.8%	9.4%	7.9%	6.6%	6.1%	5.3%	4.5%
<b>Other</b>	15.2%	17.3%	15.7%	11.8%	9.6%	8.2%	6.8%	5.7%	5.2%	4.3%
<b>Gypsy or Irish Traveller</b>	12.4%	13.0%	11.5%	12.3%	10.8%	10.1%	8.7%	7.9%	7.3%	6.0%
<b>Other Mixed</b>	12.1%	14.7%	13.5%	11.8%	10.0%	9.1%	8.0%	7.5%	7.0%	6.4%
<b>Other Asian</b>	11.2%	13.8%	14.8%	13.4%	11.2%	9.7%	7.7%	6.9%	6.0%	5.3%
<b>White and Asian</b>	10.8%	11.0%	11.2%	10.7%	9.7%	9.4%	9.1%	9.2%	9.1%	9.6%
<b>Other White</b>	9.8%	13.3%	13.9%	12.2%	10.5%	9.9%	8.8%	7.9%	7.2%	6.6%
<b>Chinese</b>	9.7%	11.8%	13.8%	11.8%	10.3%	8.8%	9.0%	8.3%	8.3%	8.3%
<b>White Irish</b>	8.9%	10.8%	11.5%	11.2%	10.6%	10.1%	9.6%	9.3%	9.1%	8.9%
<b>White British</b>	8.6%	8.5%	9.0%	9.7%	10.1%	10.5%	10.7%	10.9%	11.0%	10.9%
<b>Indian</b>	8.3%	12.5%	15.4%	13.2%	11.6%	9.8%	8.1%	7.3%	6.8%	6.8%
<b>England Average</b>	10.0%	10.1%	10.2%	10.2%	10.0%	10.0%	9.9%	9.9%	9.9%	9.7%

	>15% Population
	10-15% Population
	5-10% Population
	0-5% Population

## Analysis of mortality by country of birth

New analyses of mortality rates by country of birth for all causes, circulatory disease, cancer and suicide, are presented in this report.

The method used for analysis broadly follows previous work by ONS.<sup>2</sup> Data on deaths by age, sex, country of birth and underlying cause of death registered in 2011-13 were used, along with 2011 Census based population data by age, sex, and country of birth. Indirect standardisation was used to adjust for differences in age distribution between populations of interest using the deaths and population of England by sex and five-year age group as the standard. The standard includes all deaths occurring in England in 2011-13, regardless of country of birth and includes those where country of birth was not known. Standardised mortality ratios and 95% confidence intervals were calculated for selected countries, or groups of countries.

Countries have been grouped based on the availability of population data, according to Table A2 below. Countries of the UK and Ireland have been included separately, and are not included in the EU member countries (2001) group.

Where the 2011 Census based population of England showed that there were more than 200,000 people born in a given country, the country was also analysed separately. Countries meeting this criterion were: Poland, Germany, Bangladesh, Pakistan and India, and are presented in the charts separately from the other country groups. It should be noted that deaths in these countries are also counted in the relevant groupings, i.e. Poland is included in the EU Accession Countries (2011) group, Germany is included in the EU Member countries (2001) group, and Bangladesh, Pakistan and India are all included in the Southern Asia group.

Country of birth was not recorded for around 4,000 deaths, and these deaths are excluded from the country of birth groupings, but are included in the index rate for England as a whole.

Table A2: Groupings used for country of birth analysis<sup>i</sup>

<b>Grouping</b>	<b>Countries</b>
England	England
Northern Ireland	Northern Ireland
Scotland	Scotland
Wales	Wales
Ireland	Ireland
EU Member Countries (2001) (countries which were EU members in 2001)	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden
EU Accession Countries (2011) (countries which became EU member states between 2001 and 2011)	Bulgaria, Cyprus, Czech Republic <sup>ii</sup> , Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia
Poland	Poland
Central and Western Africa	Angola, Cameroon, Cape Verde, Chad, Congo, DR Congo, Equatorial Guinea, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Nigeria, São Tomé & Príncipe, Senegal, Sierra Leone, St Helena, Togo
South and Eastern Africa	Botswana, Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Reunion, Rwanda, Seychelles, Somalia, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe
Middle East	Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Occupied Palestinian Territories, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen, Middle East not otherwise stated (nos)
Eastern Asia	China, Hong Kong, Japan, North Korea, South Korea, Macao, Mongolia, Taiwan
Southern Asia	Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka
Bangladesh	Bangladesh
India	India
Pakistan	Pakistan
South East Asia	Brunei, Burma, Cambodia, East Timor, Indonesia, Laos, Malaysia, The Philippines, Singapore, Thailand, Vietnam
The Caribbean	Anguilla, Antigua & Barbuda, Aruba, The Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Cuba, Curacao, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Puerto Rico, Saint Martin (French part), Saint Maarten (Dutch part), St Kitts & Nevis, St Lucia, St Vincent & the Grenadines, Trinidad & Tobago, Turks & Caicos, Caribbean nos, Netherlands Antilles nos
Rest of the World	Others not specified above

<sup>i</sup> Country names as at 2011 Census.<sup>ii</sup> Includes Czechoslovakia (nos).

Country of birth should not be considered a proxy for ethnic group, since it does not take into account the ethnic diversity of the country of origin. Table A3 summarises the relationship between country of birth and ethnic group based on data from the 2011 Census.

Table A3: Percentage of population in each broad ethnic group by country of birth, England residents, 2011

Country of Birth	Broad ethnic group				
	White	Mixed/multiple ethnic group	Asian/Asian British	Black/African/Caribbean/Black British	Other ethnic group
England	92	2	4	2	0
Northern Ireland	98	1	1	0	0
Scotland	98	1	1	0	0
Wales	97	1	1	0	0
Ireland	96	1	1	1	1
EU Member countries (2001)	86	4	4	5	2
EU Accession countries (2011)	94	1	1	1	2
Central and Western Africa	4	4	1	90	1
South and Eastern Africa	30	4	27	36	3
Middle East	20	5	22	2	51
Eastern Asia	8	3	87	0	1
Southern Asia	3	1	93	0	2
South-East Asia	14	5	77	1	3
North America and the Caribbean	43	6	3	46	2

Source: ONS (Census 2011).

## References

1. Keppel K, Pamuk E, Lynch J, et al. 2005. Methodological issues in measuring health disparities. National Center for Health Statistics. Vital Health Stat 2(141).
2. Wild S, Fischbacher C, Brock A et al. 2007. Mortality from all causes and circulatory disease by country of birth in England and Wales 2001-2003. Journal of Public Health 29(2) pp191-198.

# Appendix 3: Summary tables by ethnic group and country of birth

Figure A3: Summary of indicators by ethnic group

Indicator	Asian					Mixed					Black				White				Other		Not stated	Unknown	
	Indian	Bangladeshi	Pakistani	Asian - Other	Asian	Mixed - White and African	Mixed - White and Caribbean	Mixed - White and Asian	Mixed - Other	Mixed	Black Caribbean	Black African	Black - Other	Black	White British	White Irish	Gypsy/Roma	Travellers of Irish Heritage	White - Other	White			Chinese
5 Infant Mortality	Green	Green	Green	Green	Green																		
6 Low birthweight of term babies	Red	Red	Red	Red	Red																		
7 Proportion of five year old children with dental decay																							
8a Child excess weight in 4-5 year olds	Green	Yellow	Green	Green	Green	Red	Red	Green	Yellow														
8b Child excess weight in 10-11 year olds	Red	Red	Red	Red	Red	Red	Red	Green	Red														
9a Alcohol related hospital admissions (male)	Blue																						
9b Alcohol related hospital admissions (female)																							
10a Prevalence of smoking (male aged 18 years and over)																							
10b Prevalence of smoking (female aged 18 years and over)																							
11a Incidence of tuberculosis (TB) (UK born)	Red	Red	Red	Red	Red																		
11b Incidence of tuberculosis (TB) (non-UK born)										Yellow	Green	Red	Red										
12a Percentage reporting self harm																							
12b Percentage reporting suicide attempts																							
12c Percentage reporting suicidal thoughts																							
13 Self reported wellbeing – low life satisfaction																							
14 Children in low income families (aged under 20)	Blue	Blue	Blue	Blue	Blue																		
15 Readiness for school	Green	Red	Red	Yellow	Green	Yellow	Red	Green	Green	Red	Yellow	Red	Red	Green	Green	Red	Red	Red	Red	Red	Yellow	Red	Red
17 Employment rate	Yellow	Red	Red																				

Significantly better than England	Children in low income families and suicide
No significant difference	Worse than England (no significance could be calculated)
Significantly worse than England	Better than England (no significance could be calculated)
Data not available	Alcohol
	Higher proportion than all admissions (no significance could be calculated)
	Lower proportion than all admissions (no significance could be calculated)

Figure A4: Summary of indicators of mortality by country of birth, 2011-13

Indicator		England	Wales	Scotland	Northern Ireland	Ireland	EU Accession Countries	Poland	EU Member countries	Germany	Southern Asia	India	Bangladesh	Pakistan	SouthEast Asia	Eastern Asia	South & Eastern Africa	Central & Western Africa	Middle East	The Caribbean	Rest of World		
1a	Mortality from all causes (Male, all age)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	
	Mortality from all causes (Female, all age)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
1b	Mortality from all causes (Male, age under 75)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Mortality from all causes (Female, age under 75)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
3	Cardiovascular disease mortality (Male, age under 75)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Cardiovascular disease mortality (Female, age under 75)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
4	Cancer mortality (Male, age under 75)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Cancer mortality (Female, age under 75)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
12	Suicide (Male, age 10+)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Suicide (Female, age 10+)	Green	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Significantly better than average for England residents
No significant difference
Significantly worse than average for England residents

Source: PHE analysis of ONS death registration data and 2011 Census population data.