

Chapter 3

Risk factors

An understanding of the causal factors underlying patterns of health and well-being in the population is key to the commissioning and delivery of effective public health services.

Early death and disability do not occur in isolation: they are mediated through a complex interplay of social, economic and environmental factors, as well as by individual specific determinants of health. This chapter focuses on the risks to health presented by the lifestyles that people lead: factors such as smoking, poor diet and high risk alcohol consumption collectively constitute some of the most important direct causes of early death and disability in England, and are primary drivers of health inequalities.

The World Health Organisation (WHO) report on Global Health Risks¹ and the associated burden of disease toolkit set the context for this chapter. Clearly, there are variations across the world in the relative importance of different behavioural risks, but the WHO toolkit estimates that the top ten risk factors for early death and disability in the UK are, in order of impact:

- tobacco use
- harmful alcohol use
- high blood pressure
- high cholesterol
- overweight and obesity
- physical inactivity
- illicit drug use
- low fruit and vegetable intake
- occupational risks
- poor sexual health

Chapter 3 considers each of these in turn, with the exception of occupational risks (addressed in Chapter 4). Replacing this is urban outdoor air pollution, which is identified by WHO as a risk factor in high income countries.

Finally, this chapter also considers the multiple interactions between several of these risk factors and their cumulative impact on health and wellbeing outcomes.

The strategic review of health inequalities in England, *Fair Society, Healthy Lives*², led by Sir Michael Marmot, provides the second context for this chapter. This report highlights the contribution that behavioural risks make to health inequalities, and makes it clear that effective action requires an understanding that these factors occur in a social and cultural context and are not simply a product of individual choice alone.

Tobacco use, for example, is the primary cause of early death and ill health in England. Public health policies have contributed to a progressive reduction in smoking rates in recent decades through a combination of measures to regulate the promotion and supply of tobacco, and to help smokers quit. Nevertheless, many young people, particularly those from more deprived backgrounds and from some ethnic groups, continue to be exposed to second-hand smoke at home; many go on to become smokers themselves because they perceive it to be a normal part of adult life³. Combined with evidence that not all smokers who want to quit make equal use of the sources of support available to them, these social and cultural influences mean that the burden of disease associated with smoking falls disproportionately on specific groups in the population.

In recognition of this complex causal chain, *Fair Society, Healthy Lives* recommends action across a range of policy areas, including prioritising the prevention and early detection of those risk factors that contribute most to the conditions that drive health inequalities.

The data sources available to quantify the prevalence of the different behavioural risks provide a strong basis for understanding the varying health burden these factors place on different groups in the population and across the life course. For example, alongside the age, sex, socioeconomic and ethnic group differences in smoking rates, there are similar variations in alcohol consumption patterns and the distribution of alcohol related harms.

It is not the case, however, that the health burden associated with the risk factors falls exclusively on the same groups. In the case of alcohol, for example, the highest hospital admission rates are found in some of the more deprived parts of England, but the areas with the worst increasing and higher risk drinking rates are among the most affluent.

Much of this understanding is based on estimates derived from sample surveys and the secondary use of data collected for other purposes, such as hospital admissions. As a consequence, there remain many gaps and uncertainties in our understanding of the distribution of risk factors, and their associated health burden, across the population. There is a pressing need for these gaps in our knowledge to be addressed, in particular so that local areas have robust information on the health needs of their population on which to base their service commissioning decisions.

The majority of the data sources used to illustrate the behavioural risks focus on these factors separately and individually. This approach has supported the development of a wide range of public health policies and programmes, which have been effective in reducing the prevalence of, and health burden attributable to, many of the risk factors. It is clear, however, that these factors often cluster together: more than a third of adults in England have two risk factors and a further third have three or more.

There is evidence that these proportions are falling, albeit at a different rate across the socioeconomic gradient. But to effectively support people to make the change towards more healthy lives, those commissioning and delivering health services need to recognise not only the varying prevalence of individual risk factors across groups in the population and the life course, but also that the majority of people have multiple risks to their health.

Fair Society, Healthy Lives notes that only 4% of NHS funding is currently spent on prevention. Given the health burden attributable to risk factors, there is a clear case for arguing for this proportion to be increased. This is not new: the final report of the review led by Sir Derek Wanless⁴ looking at the resources required to provide high quality health services in the future, projected that a substantial reduction in costs could be achieved by an increased emphasis on prevention, coupled with higher levels of public engagement in relation to their health.

The changes resulting from the Health and Social Care Act 2012 also present an opportunity for local authorities (who already have responsibility for ‘the causes of the causes’ of poor health such as education, housing and the environment, as well as for social care) to work in close partnership with the NHS and the third sector to commission and deliver services that help people lead more healthy lives and reduce the health burden associated with behavioural risk factors.

1 Global Health Risks. World Health Organisation, 2009.

2 Marmot Review Team (2010) *Fair Society, Healthy Lives: Strategic review of health inequalities in England post-2010 (The Marmot Review)*. London: Marmot Review Team.

3 *Healthy Lives, Healthy People: A Tobacco Control Plan for England*. Department of Health, 2011.

4 Wanless D. *Securing our future health: taking a long-term view*. Final report. London: HM Treasury, 2002.

Smoking is the single greatest cause of preventable illness and early death in England, and a major contributor to health inequalities. Tobacco use and second-hand exposure to tobacco smoke substantially increase the risk of death from lung and other cancers, heart disease, stroke, chronic respiratory disease and other conditions.

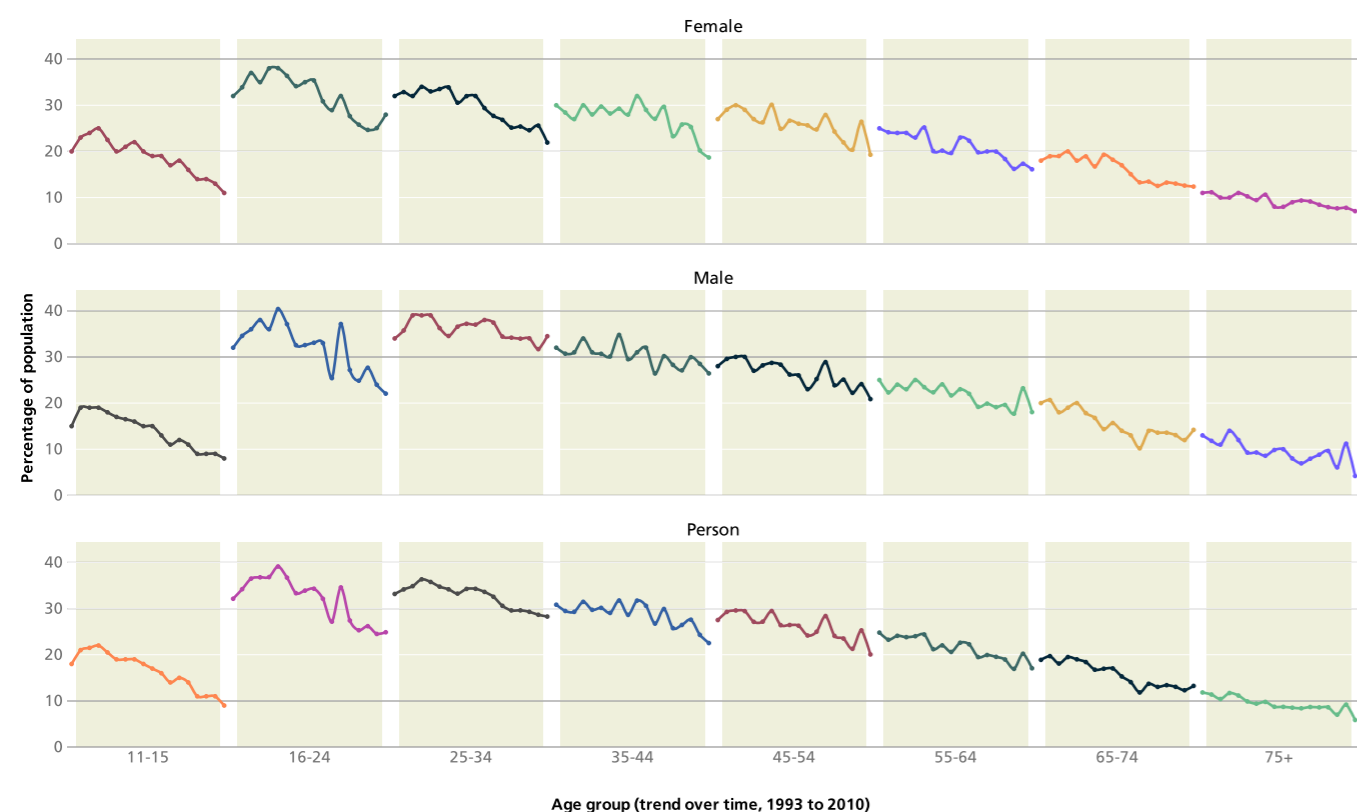
While the proportion of adults who smoke has fallen from 39% in 1980 to 20% currently, there remain marked differences between groups in the population. Rates are highest among men, younger age groups and those working in routine and manual occupations. There are also marked geographical variations in smoking rates, with a substantial number of areas with high rates found in the north of England.

Among those aged 35 and over, more than 79,000 deaths a year (or 18% of deaths) are attributable to smoking, with the highest rates again found in the north of England. A similar geographic pattern is apparent for smoking related admissions to hospital and among mothers smoking during pregnancy.

The cost to the NHS of treating smoking related illness is estimated to be £5.2 billion per year in 2005/06¹. There is clear evidence that a range of interventions in primary care, pharmacy, local authority and workplace settings are effective in reducing smoking rates.

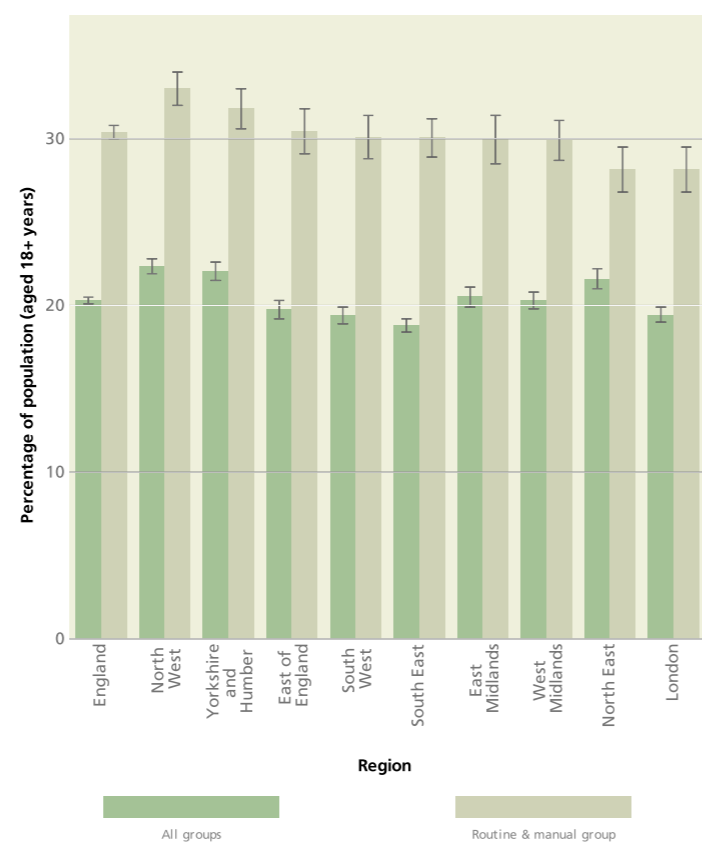
¹ Statistics on Smoking, England 2009. The NHS Information Centre for Health and Social Care. 2009.

Trend in smoking prevalence by age and sex, England, 1993 to 2010



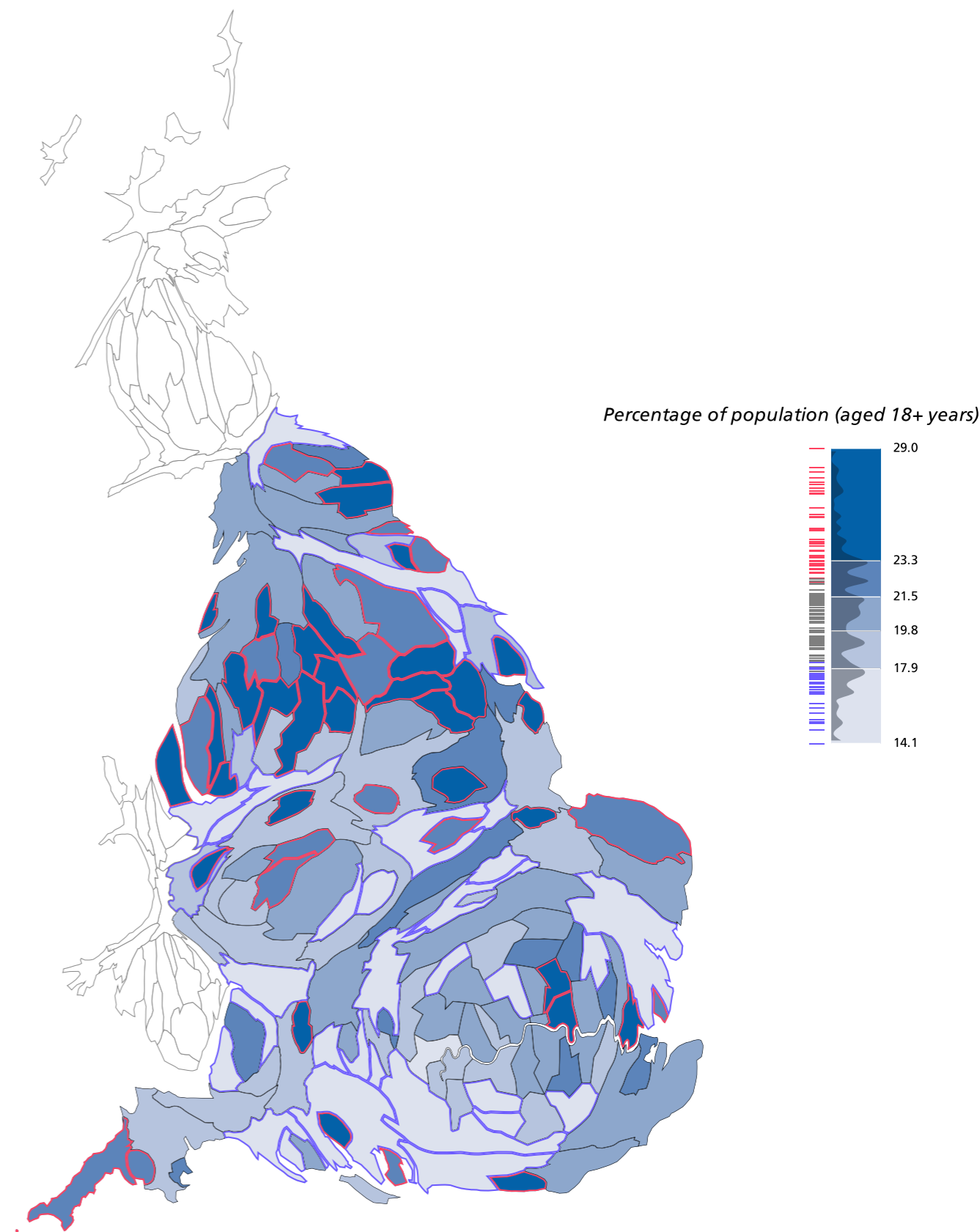
Source: Population aged 11-15: Smoking, drinking and drug use among young people in England in 2010; Population aged 16+: Health Survey for England 2010; Copyright © 2011. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved. Note: Figures for 11-15 age group include 'regular' and 'occasional' smokers

Smoking prevalence by socio-economic group, English regions, October 2010 - September 2011



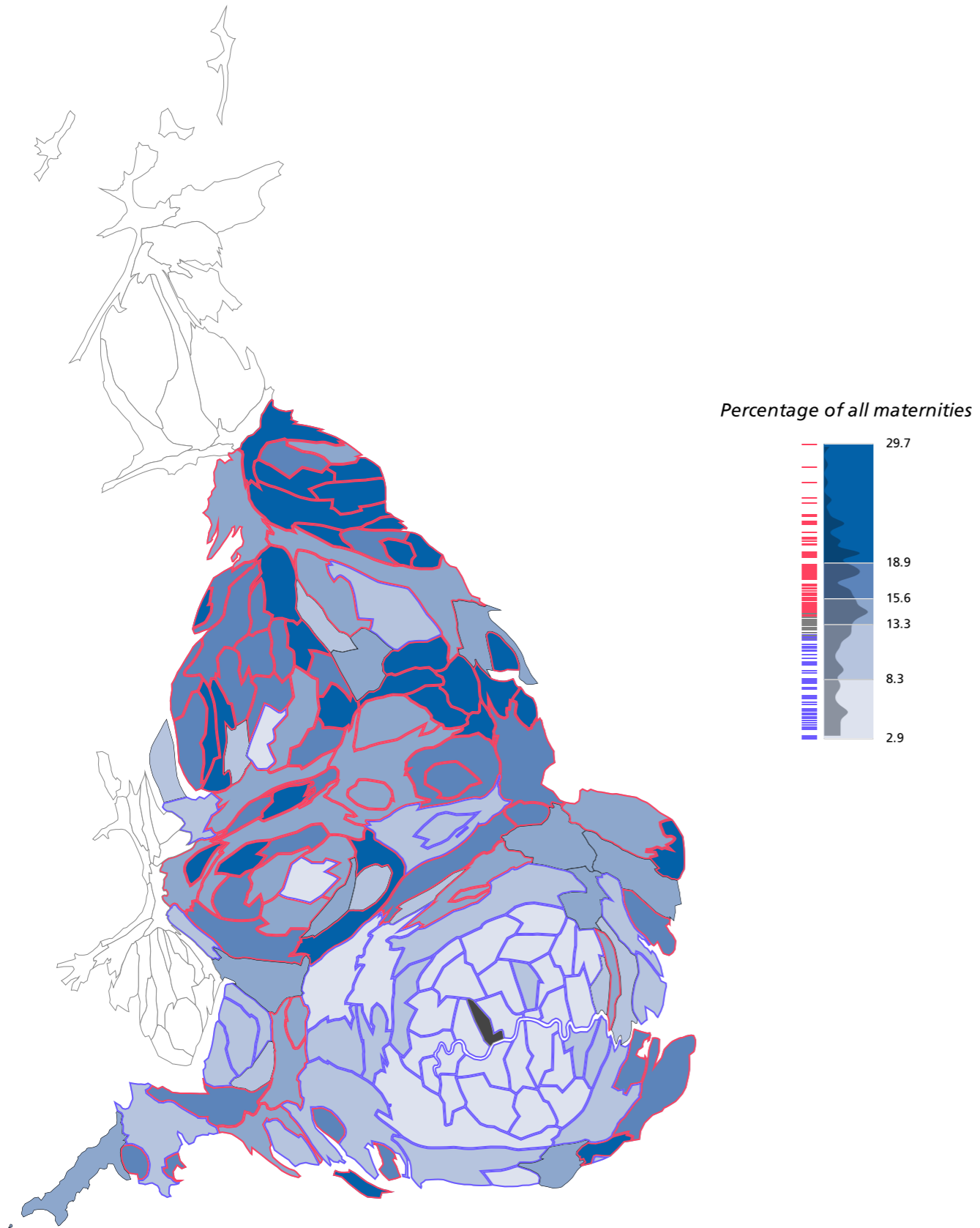
Source: Integrated Household Survey (experimental statistics), ONS. (Provided by LHO)

Smoking prevalence by upper tier local authority, England, October 2010 - September 2011



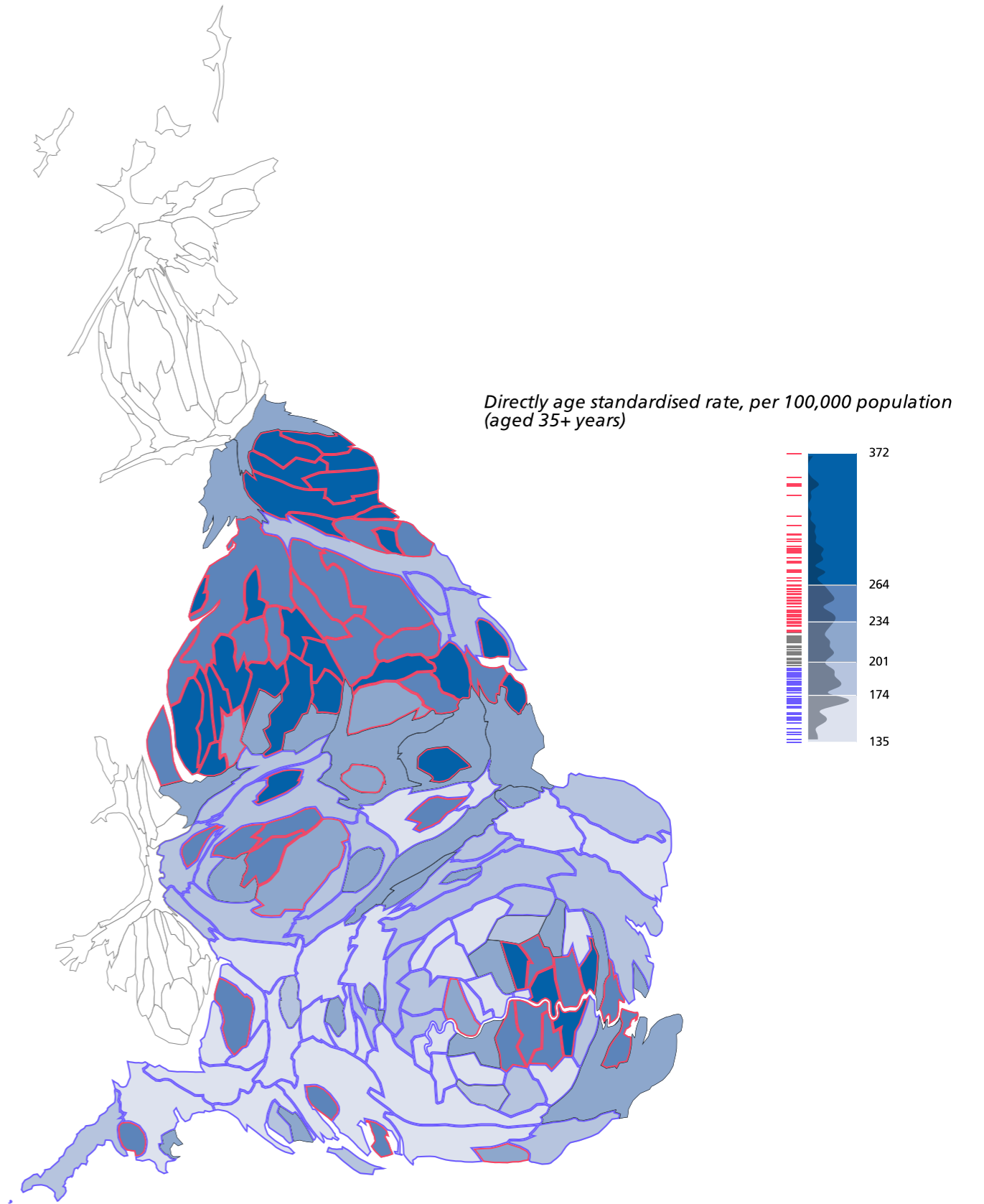
Source: Integrated Household Survey (experimental statistics), ONS. (Provided by LHO). Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Mothers smoking at time of delivery by primary care trust, England, 2011/12



Source: The Health and Social Care Information Centre, Lifestyle Statistics / Omnibus. Crown Copyright © 2012. Note: Figure not reported for Kensington & Chelsea PCT due to data quality concerns

Smoking-related mortality by upper tier local authority, England, 2008-10



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Alcohol is the second biggest lifestyle health risk factor after tobacco use. Regularly drinking more than the recommended limits increases the risk of a range of chronic diseases including liver disease, diabetes, cardiovascular disease, and cancers of the breast and gastrointestinal tract. High risk drinking increases the risk of psychological ill-health, and is also associated with a range of social problems such as violent crime.

Drinking more than the higher risk limits is more common among young adults: in 2008-10, 26.1% of males and 22% of females aged 16 to 24 drank more than eight units and six units respectively on at least one day in the previous week, compared to 6.2% of males and 2% of females aged 65 and over. However, men and women in older age groups are more likely to have consumed alcohol on five or more days in the last week.

There has been a trend towards drinking less in recent years. For example, the percentage of men aged 25 to 44 who drank 'in the last week' fell from 77.2% in 2000-02 to 71.4% in 2008-10. A change (in 2006) to the survey method used to calculate units means that the trend in higher risk drinking is less clear, but here too there appears to be a downward trend.

The highest percentages of adults drinking more than recommended tend to be found in the north, with more than a fifth of males drinking more than eight units on at least one

day in the North West, Yorkshire and The Humber, and the North East. However, the picture for increasing and higher risk drinkers is more complex with modelled estimates suggesting that many areas in the South East, South West and West Midlands have among the highest levels.

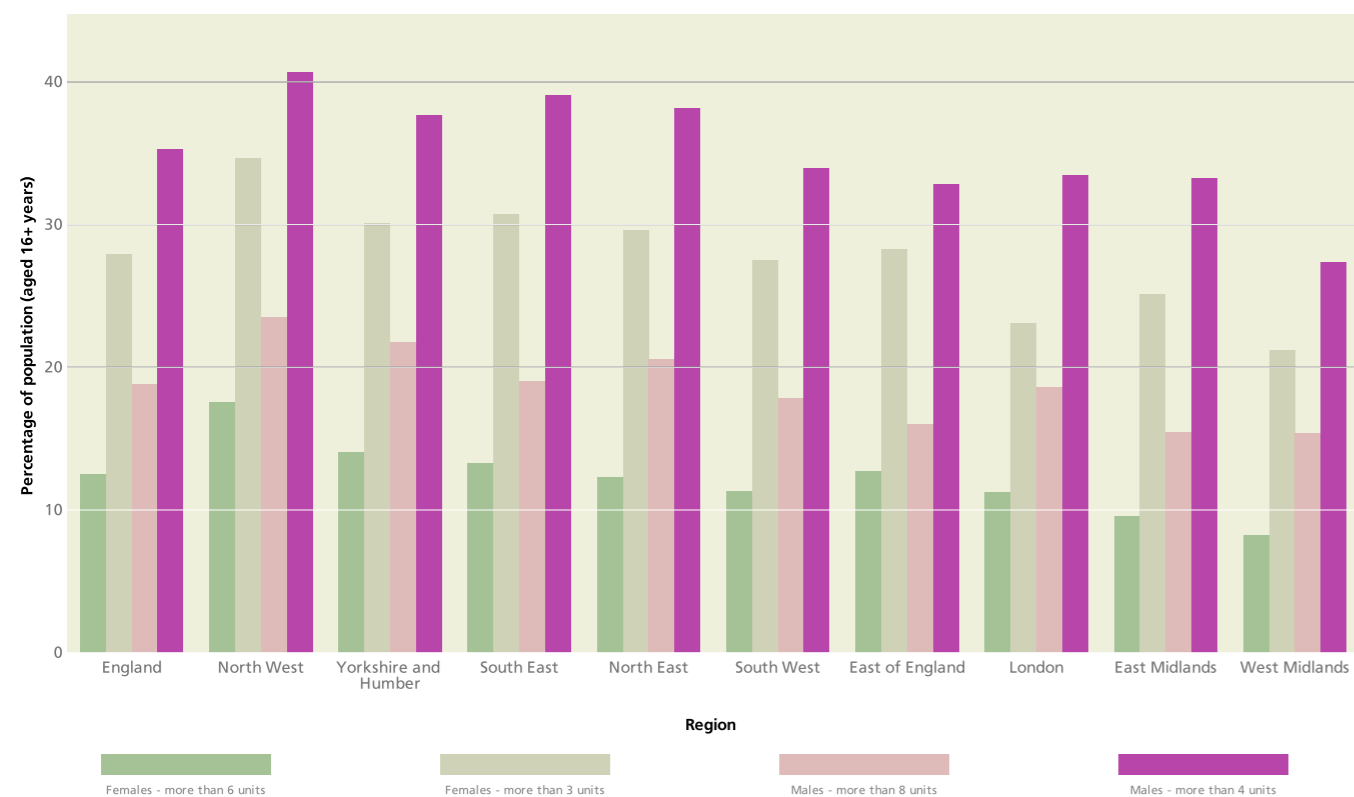
The highest hospital admission rates for alcohol-attributable causes, both for adults and those aged under 18, are found in parts of the North West and North East, with Manchester, Middlesbrough, Salford and Liverpool having the highest rates.

While there is evidence that alcohol consumption levels are falling, there is a lagged effect in terms of the harms caused by higher risk drinking. Alcohol related death rates have risen steadily over the last two decades¹, and while there is some evidence that the rate is now falling, hospital admission rates for alcohol conditions continue to rise².

There is clear evidence that a range of interventions in primary care, pharmacy, local authority and workplace settings are effective in reducing drinking rates³.

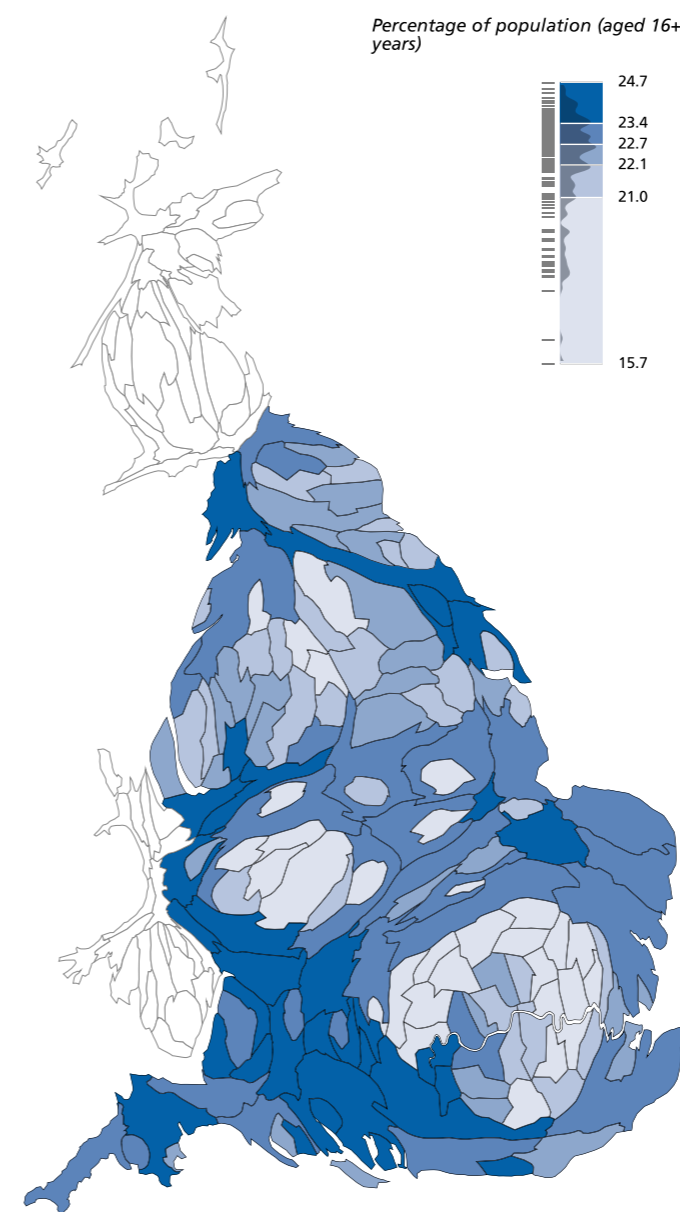
- 1 Alcohol-Related Deaths in the United Kingdom, 2010. The Office for National Statistics.
- 2 Statistics on Alcohol: England, 2012. Health and Social Care Information Centre.
- 3 The Government's Alcohol Strategy, 2012. HM Government

Maximum daily alcohol consumption in last week by sex and region, England, 2010



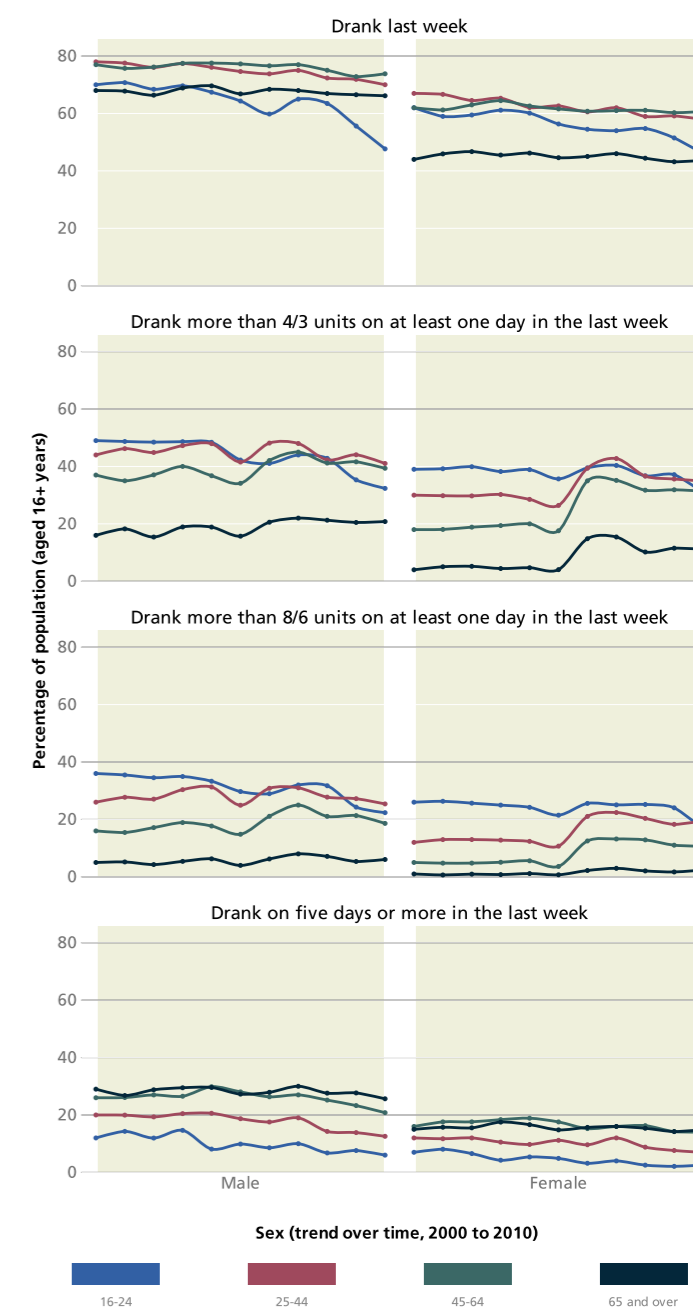
Source: General Lifestyle Survey, 2010. ONS.

Increasing and higher risk drinking by upper tier local authority, England, 2008/09



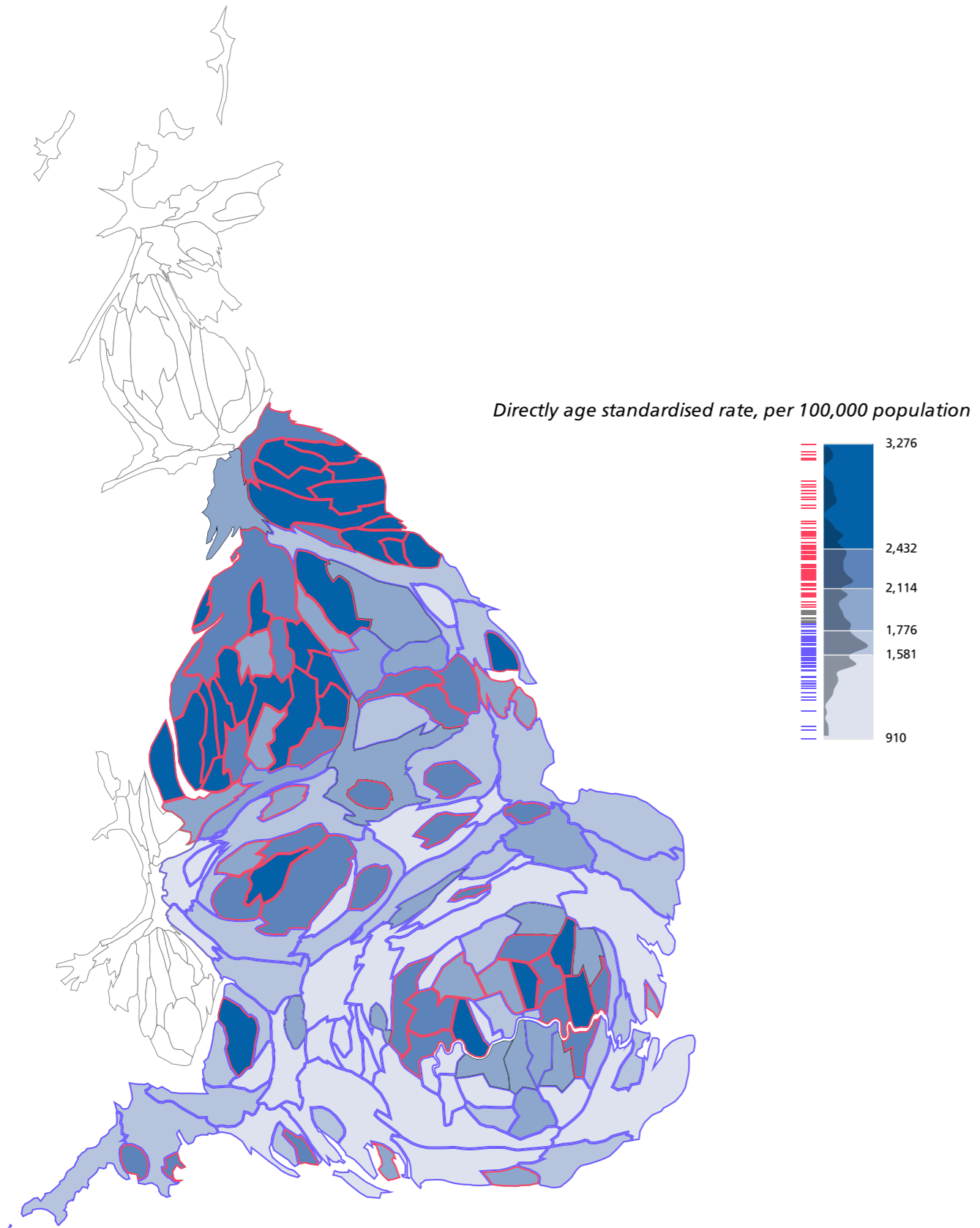
Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Trend in drinking behaviours by age and sex, England, 2000 to 2010



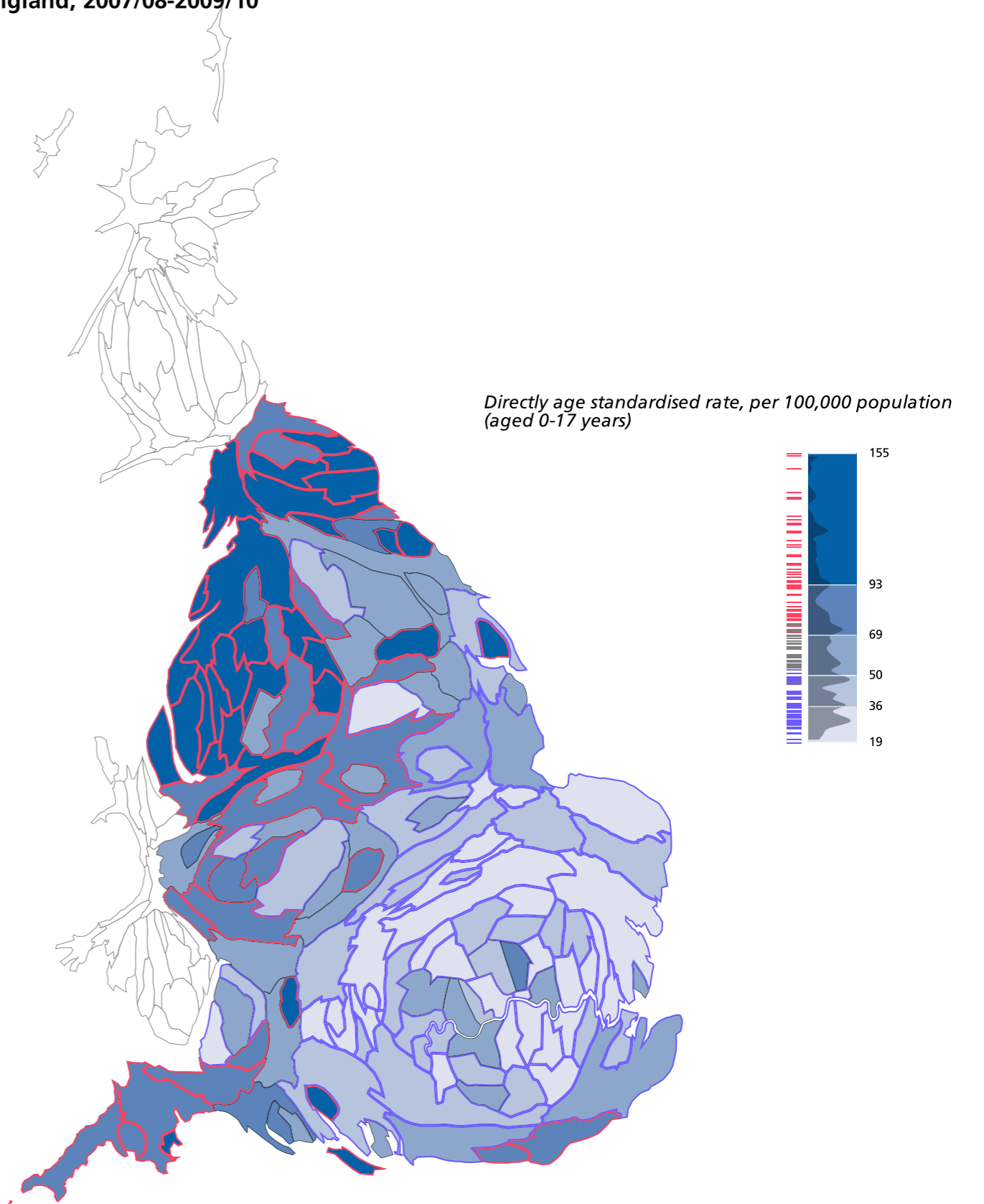
Source: General Lifestyle Survey, 2010. ONS.

Hospital admission rates for alcohol related harms by upper tier local authority, England, 2010/11



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Hospital admission rates for alcohol-specific conditions among under 18 year olds by upper tier local authority, England, 2007/08-2009/10



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

High blood pressure, or hypertension, is one of the main risk factors for heart attack and stroke. It is defined as a systolic blood pressure at or above 140 mmHg or diastolic blood pressure at or above 90 mmHg.

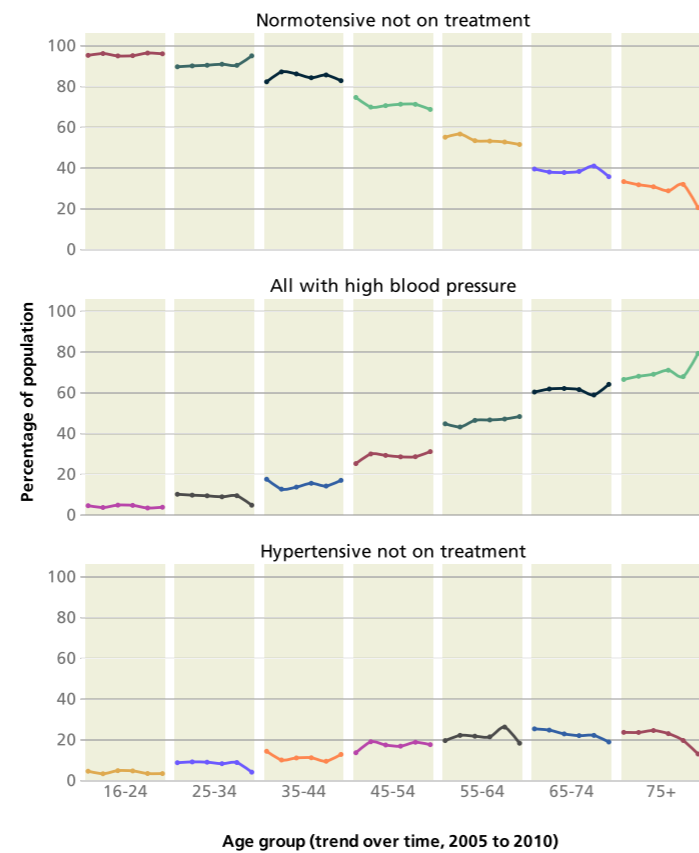
The percentage of the population with high blood pressure increases progressively with age. In 2008-10, 4.1% of 14 to 24 year olds had high blood pressure, compared to 25.9% of 45 to 54 year olds and 72.8% of those aged 75 and over. There is evidence that the prevalence of high blood pressure is increasing among older age groups, although the percentage whose hypertension is not controlled by medication is decreasing.

High blood pressure is more common among men from the Black Caribbean, Irish and Indian ethnic groups, and among women from the Black Caribbean and Irish groups.

The estimated prevalence of high blood pressure varies across England. More than 35% of adults in parts of South West and South East England have high blood pressure, compared to less than 25% in several London boroughs and elsewhere.

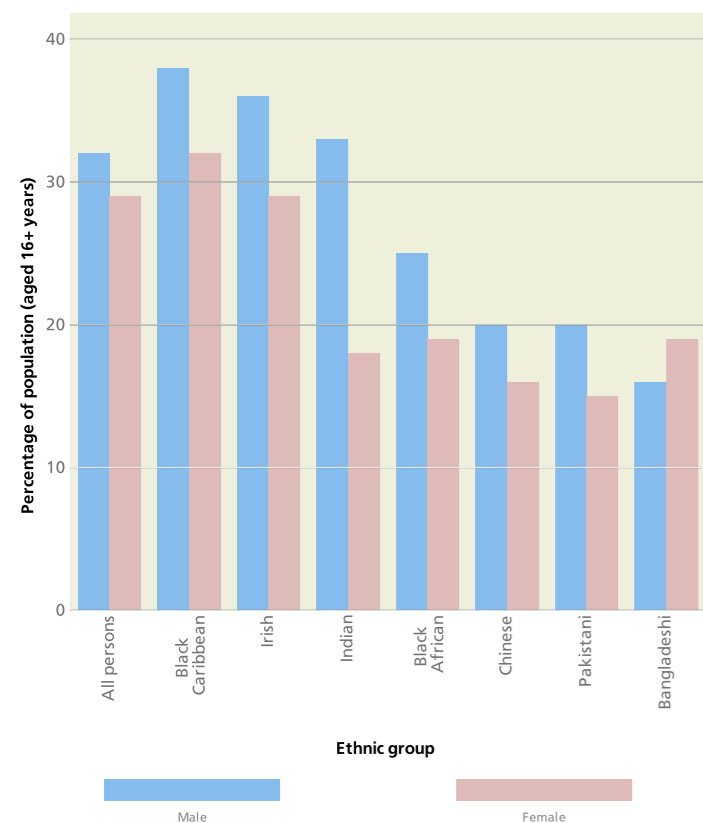
Hypertension is the most important modifiable risk factor for cardiovascular disease. Physical activity, healthy eating (particularly reducing salt intake) and medication can all help control and reduce blood pressure levels.

Trends in blood pressure by age, England, 2005 to 2010



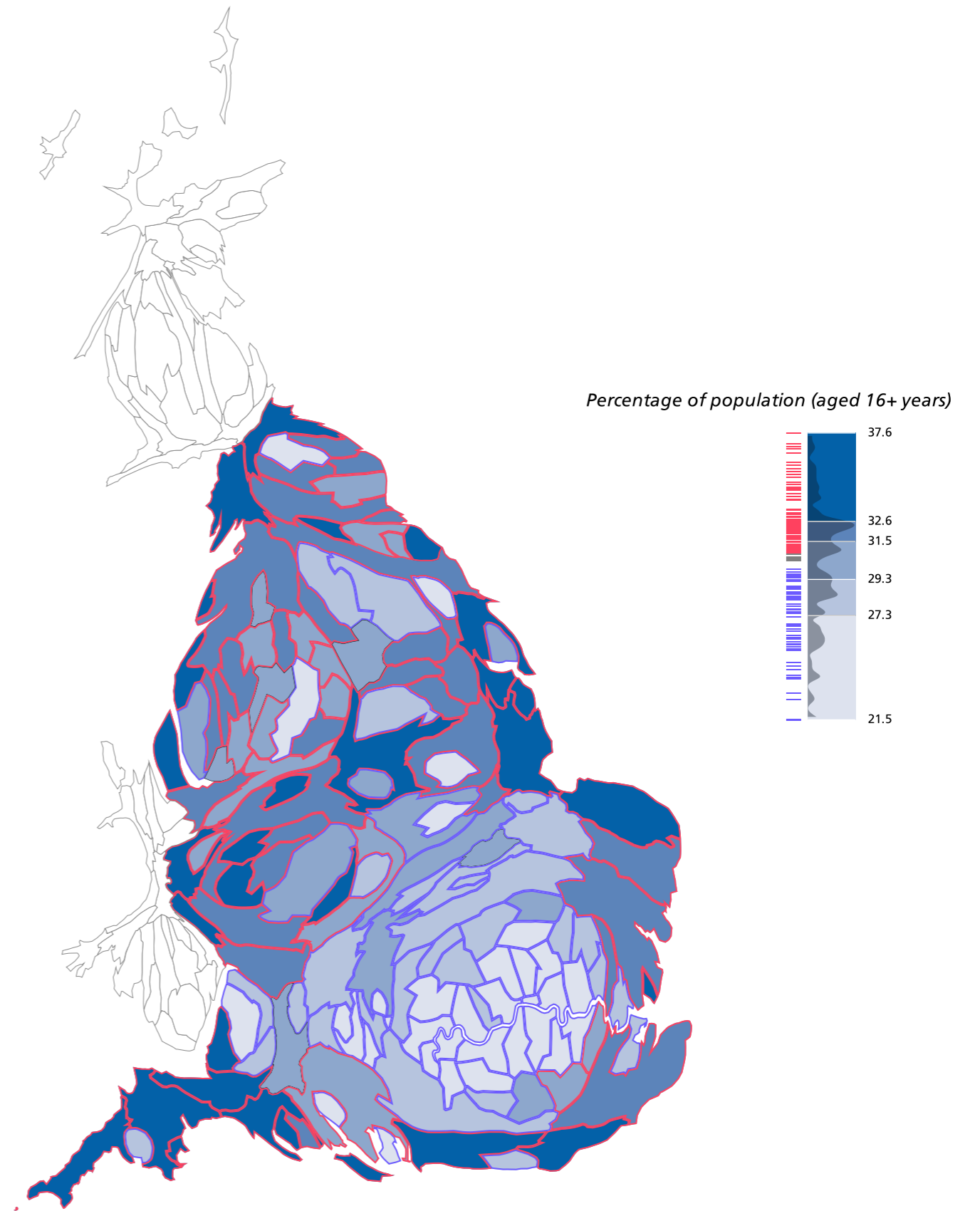
Age group (trend over time, 2005 to 2010)
Source: Health Survey for England 2010. Copyright © 2011. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

High blood pressure by ethnic group and sex, England, 2004



Source: Health Survey for England 2004. Copyright © 2006. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Hypertension prevalence by upper tier local authority, England, 2009



Source: Hypertension prevalence model. (Provided by ERPHO)

Cholesterol is a fat mostly made in the liver and transported in the blood. Raised cholesterol is defined as a blood cholesterol concentration greater than 5mmol/l and is associated with an increased risk of heart disease and stroke.

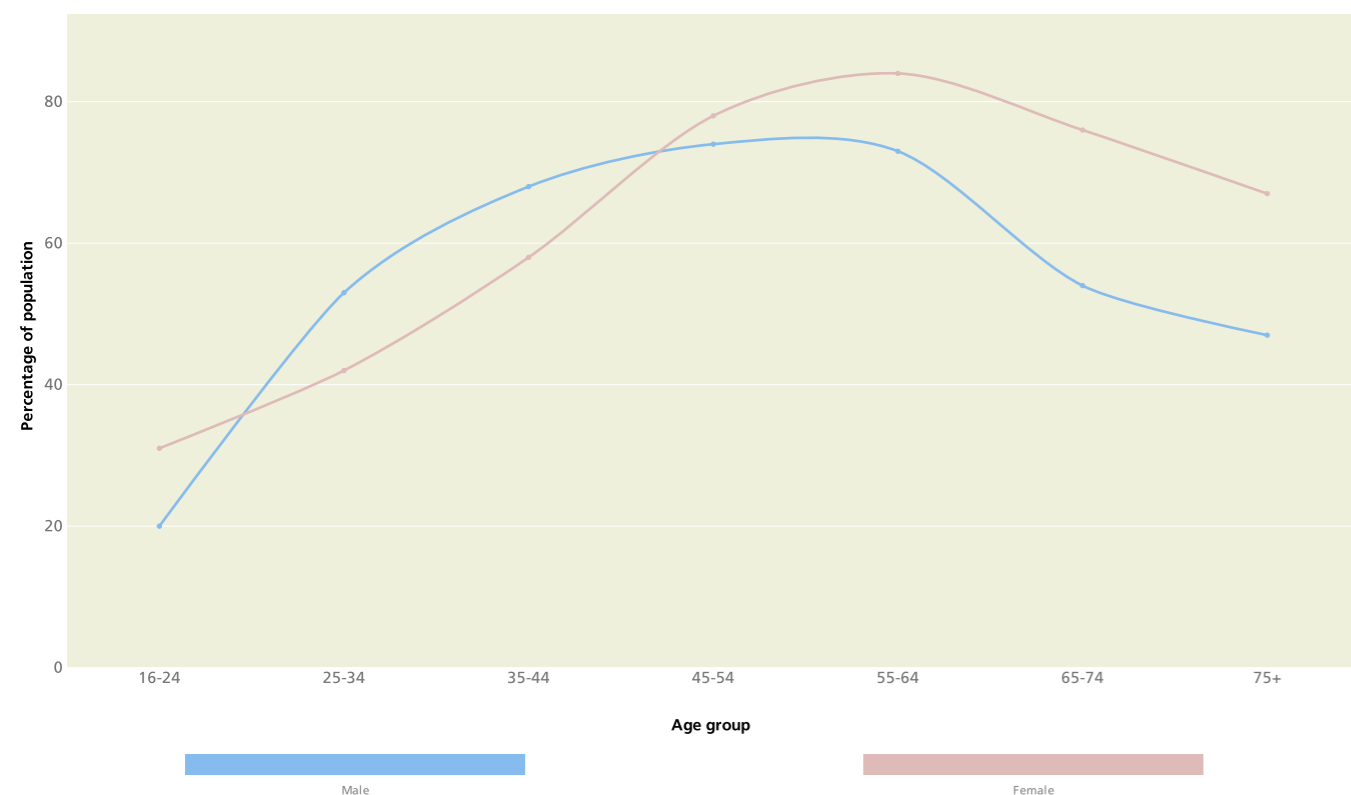
The prevalence of raised cholesterol increases from 31% of females and 20% of males aged 16 to 24, peaks at 84% of women aged 55 to 64 and 74% of men aged 45 to 54, and then falls again for both sexes in the oldest age groups. The percentage of adults with raised cholesterol is broadly comparable across the English regions, although the percentage of women in the South West with this risk factor is higher than the England average at 66%, as is the percentage of males in Yorkshire and The Humber at 62%.

There is evidence that cholesterol levels have been falling over time, largely as a result of an increase in the prescribing of statins and other lipid-lowering drugs: between 1994 and 2006, the percentage of men with raised cholesterol fell from 74% to 57% and among women from 77% to 61%¹. The percentage of adults with raised cholesterol tends to be higher among lower income groups.

In addition to medication, physical activity and healthy eating (particularly reducing saturated fat intake) can help reduce cholesterol levels.

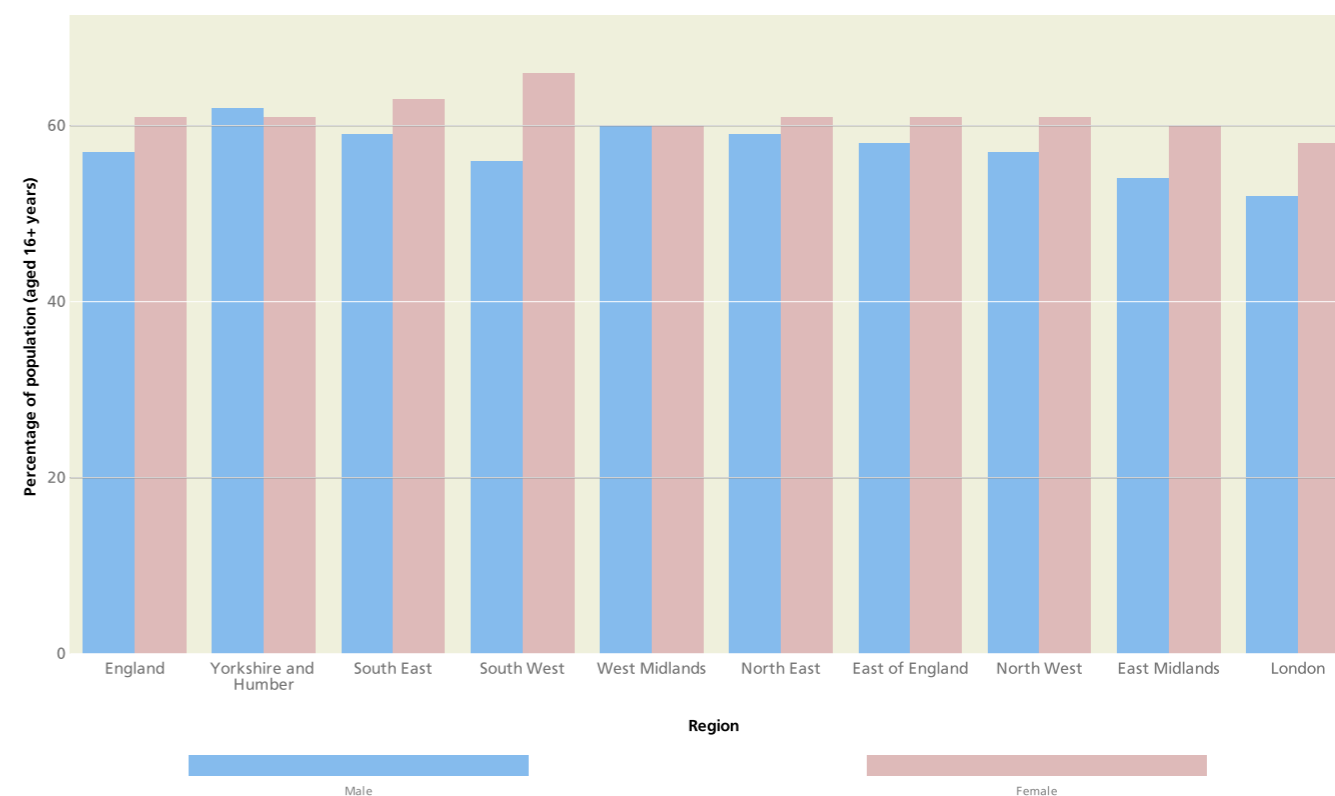
¹ Health Survey for England 2006. The Health and Social Care Information Centre.

Prevalence of raised cholesterol by age and sex, England, 2006



Source: Health Survey for England 2006. Copyright © 2008. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Prevalence of raised cholesterol by sex, English regions, 2006



Source: Health Survey for England 2006. Copyright © 2008. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Body mass index is the most common way of measuring obesity among adults, while child obesity is defined using the UK 1990 growth reference charts. Both obesity and overweight are associated with an increased risk of heart disease and stroke, type 2 diabetes, certain cancers, and osteoarthritis.

Patterns of obesity differ substantially by age. The percentage of children and young people defined as obese increases from 14.3% of those aged 2 to 10 to 18.5% of those aged 11 to 15. Among adults, the prevalence of obesity rises from 11.2% of those aged 16 to 24, peaks at 32.4% among those aged 55 to 64, before falling to 25.2% of the 75 and over age group.

There are also differences in prevalence between the sexes, with females having higher levels of obesity in the 16 to 24 and 65 and over age groups, and men having higher levels between the ages of 45 to 64. Common to both sexes and all age groups has been a progressive increase in levels of obesity, although there is evidence among children and younger adults of a levelling off of obesity rates in recent years.

The prevalence of obesity also differs across a range of factors such as deprivation and ethnicity¹. The percentage of Reception and Year 6 schoolchildren who are obese progressively increases with rising levels of deprivation. Higher

percentages of Black or Black British, Asian or Asian British, Mixed, and 'Other' ethnic group schoolchildren are also obese compared to the averages for Reception and Year 6 pupils.

Levels of child and adult obesity vary across England. The highest percentages for children are found in several London boroughs, some metropolitan areas in the Midlands, and in parts of the North West. This pattern broadly reflects the distribution of those ethnic groups with a higher prevalence of obesity.

Among adults, the modelled distribution of obesity differs, with the highest estimated percentages found in parts of the North West, Yorkshire and The Humber, West Midlands and the South East.

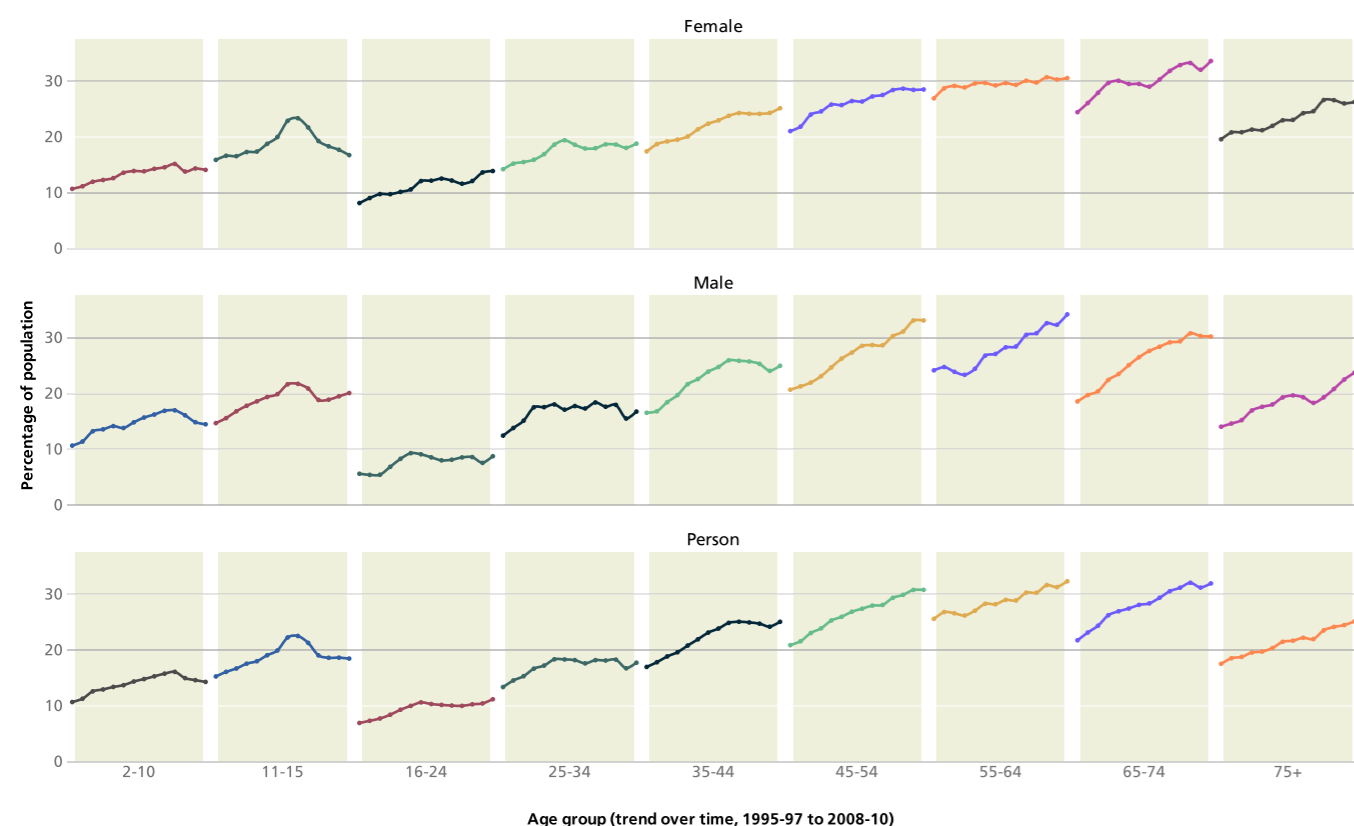
Obesity is associated with multiple health risks. For example, while approximately 18% of normal weight adults have raised blood pressure (hypertension), the figure for those who are obese is 49%².

There is clear evidence that dietary control and physical activity are effective in reducing obesity and overweight at an individual level, although creating environments that promote and enable healthy eating and active lives requires action across industry, Local Government and the NHS.

1 National Child Measurement Programme, 2010/11. The Health and Social Care Information Centre.

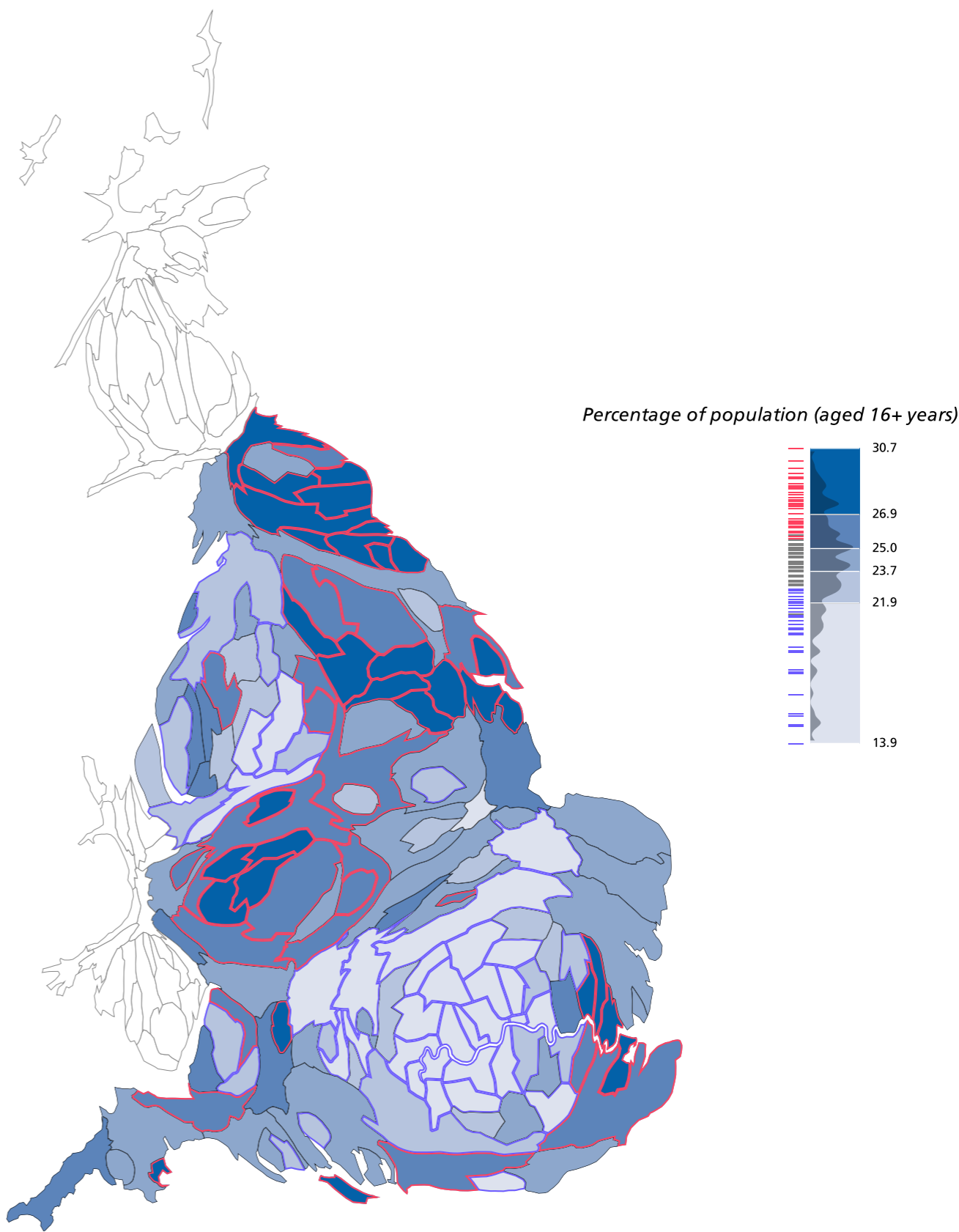
2 Statistics on Obesity, Physical Activity and Diet: England, 2012. The Health and Social Care Information Centre.

Trend in obesity prevalence by age and sex, England, 1995-97 to 2008-10



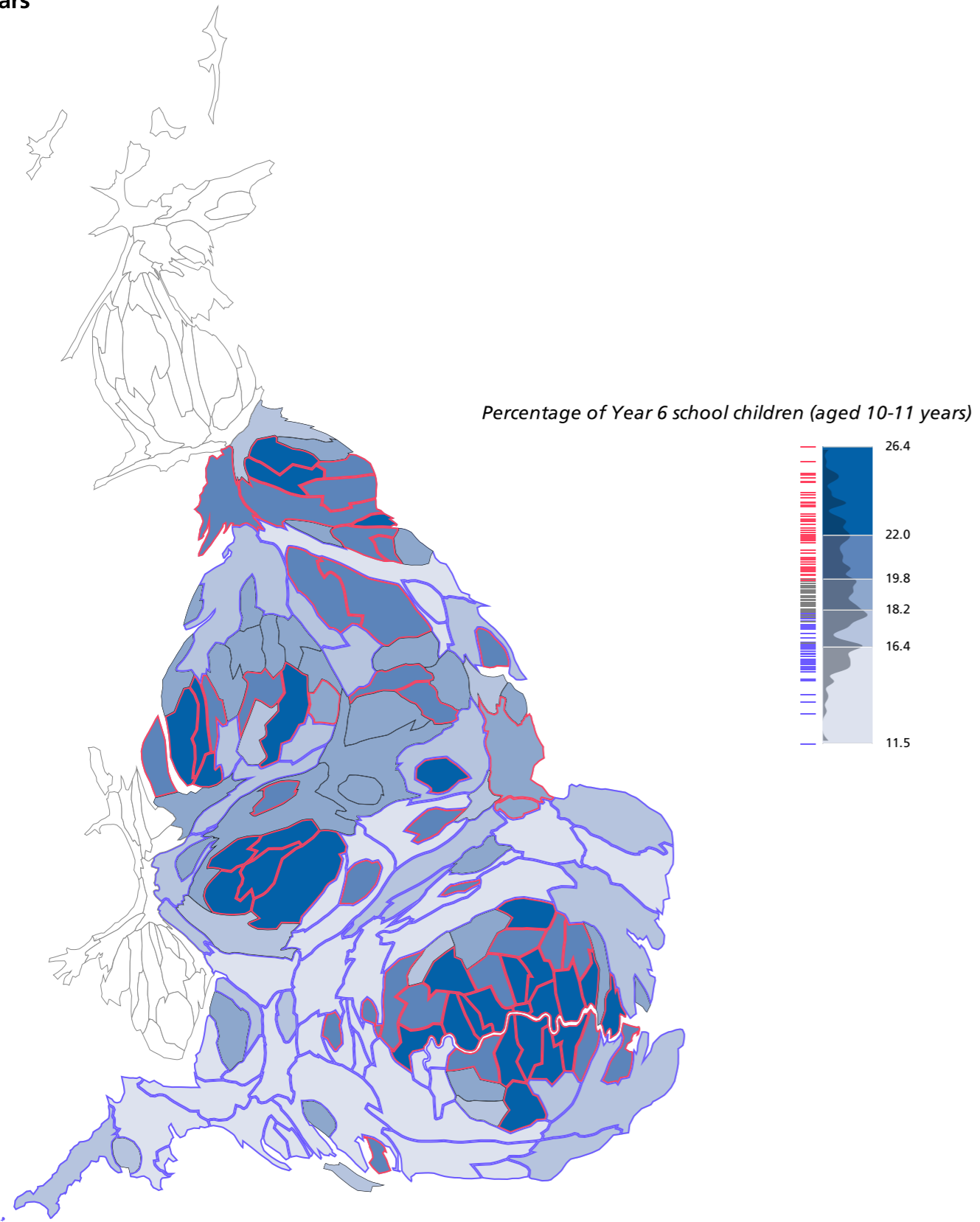
Source: Health Survey for England 2010. Copyright © 2011. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Obesity prevalence among persons aged 16 and over by upper tier local authority, England, 2006-08



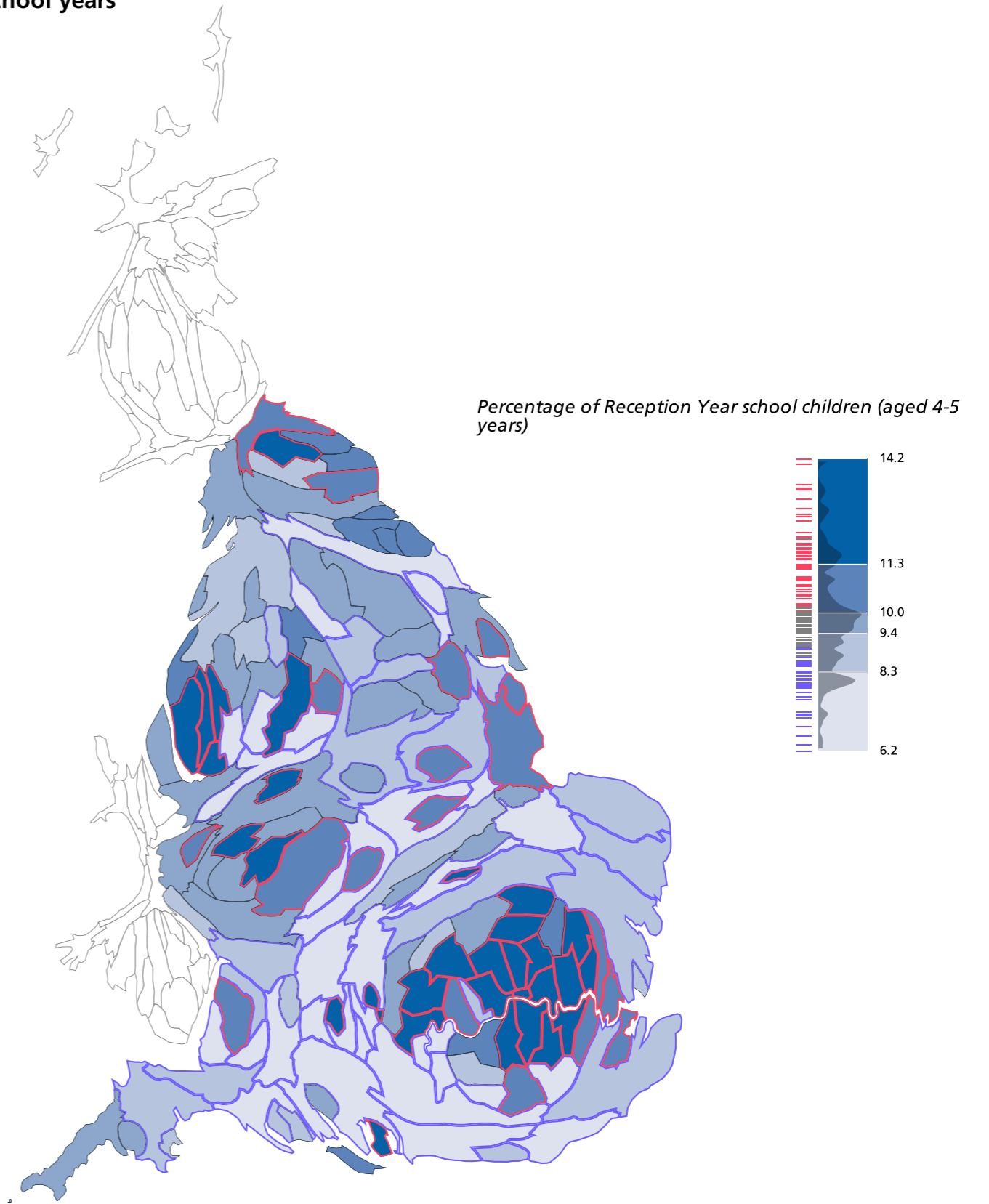
Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Obesity prevalence among Year 6 school children by upper tier local authority, England, 2008/09-10/11 school years



Source: National Child Measurement Programme. Copyright © 2009-11. The Health and Social Care Information Centre, Lifestyle Statistics. All Rights Reserved. (Analysis by NOO). Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Obesity prevalence among Reception Year school children by upper tier local authority, England, 2008/09-10/11 school years



Source: National Child Measurement Programme. Copyright © 2009-11. The Health and Social Care Information Centre, Lifestyle Statistics. All Rights Reserved. (Analysis by NOO). Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Physical activity includes all forms of exercise such as walking, cycling, active play, work-related activity, active recreation and organised sport, dancing, gardening or playing active games. A physically active lifestyle can reduce the risk of many chronic conditions including coronary heart disease, stroke, type 2 diabetes, some cancers, obesity, mental health problems and musculoskeletal conditions.

The benefits of being active are present across the life course. It is recommended that children and young people aged 5 to 18 should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day¹. For adults, the corresponding recommendation is for 150 minutes of moderate intensity activity over a week, or the equivalent of vigorous activity. All age groups should aim to be active daily and minimise the amount of time spent being sedentary for extended periods.

Structured exercise and school sport can make an important contribution to children's physical activity. Activity levels for boys remain high between the ages of 9 and 14 before falling at age 15. For girls, activity levels decline progressively from 72.2% at age 9 to 47.4% at age 15.

In 2009/10, 55.1% of schoolchildren across England participated in at least three hours of physical education and

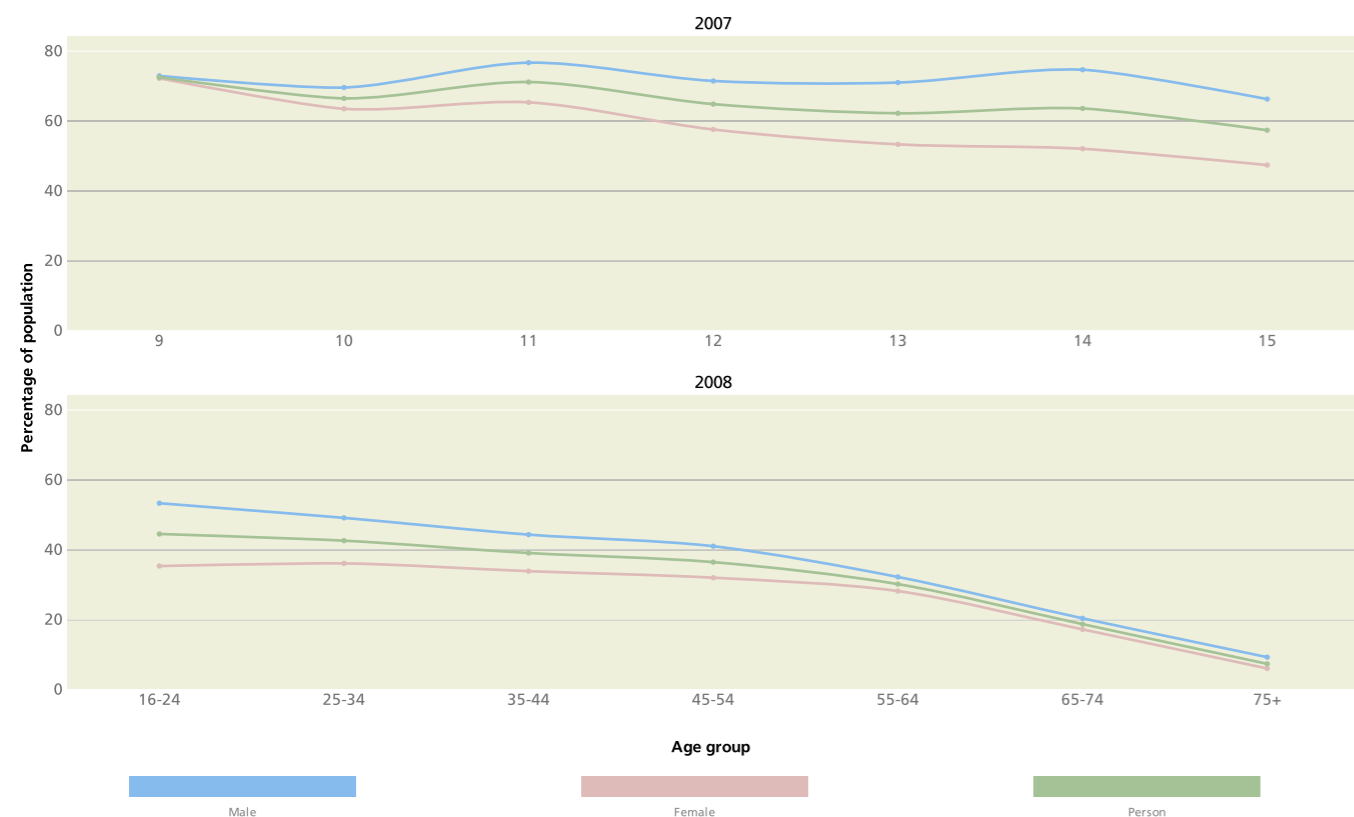
¹ Start Active. Stay Active. A report on physical activity for health from the four home countries' Chief Medical Officers. 2011. Department of Health

school sport within and beyond the curriculum in a typical week. However, reported activity levels vary substantially across the country: in some local authority areas fewer than 45% of children achieve the recommended levels, while the figure for the best performing areas is in excess of 70%.

For adults, there is a marked reduction in the percentage meeting the appropriate activity level as age increases. In 2008, an average of 39.2% of men and 28.7% of women reported they were active to at least the recommended level, with the percentage falling progressively from 44.5% of 16 to 24 year olds to 7.3% of those aged 75 and over. The percentage of active adults has increased from 26.1% in 1997 to 33.8% in 2008, but this rise should be seen in the context of a long term decline in walking and cycling for travel purposes.

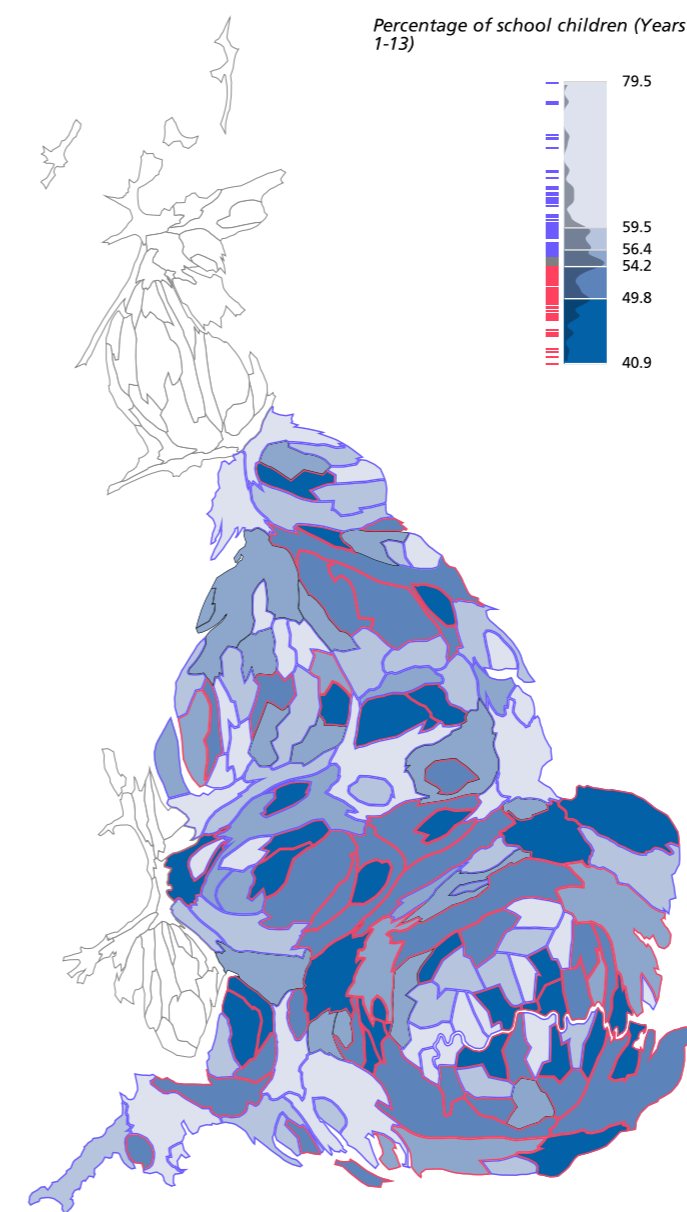
The direct cost of physical inactivity to the NHS across the UK is estimated to be £1.06 billion. There is evidence that action at multiple levels is effective in increasing physical activity levels, from primary care professionals encouraging individuals to lead active lives, to local authorities investing in community level activity programmes and employers promoting active workplaces.

Physical activity levels by age and sex, England, 2007 (children) and 2008 (adults)



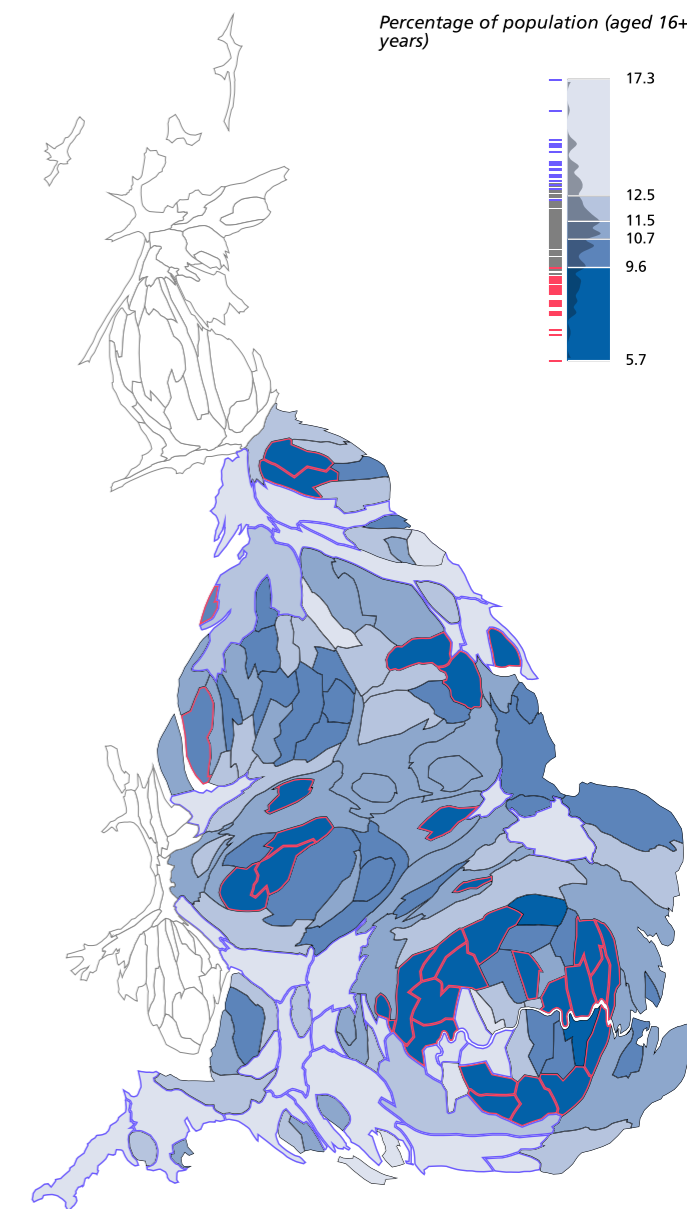
Source: Health Survey for England 2010. Copyright © 2011. Re-used with the permission of The Health and Social Care Information Centre. All rights reserved.

Physically active children by upper tier local authority, England, 2009/10



Source: 2011 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Physically active persons aged 16 years and over by upper tier local authority, England, 2009-11



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

The use of illicit drugs such as opiates and crack cocaine increases the risk of bloodborne diseases such as HIV and hepatitis, and increases the risk of death from overdose. Many problem drug users lead chaotic lives and often resort to crime to fund their addiction.

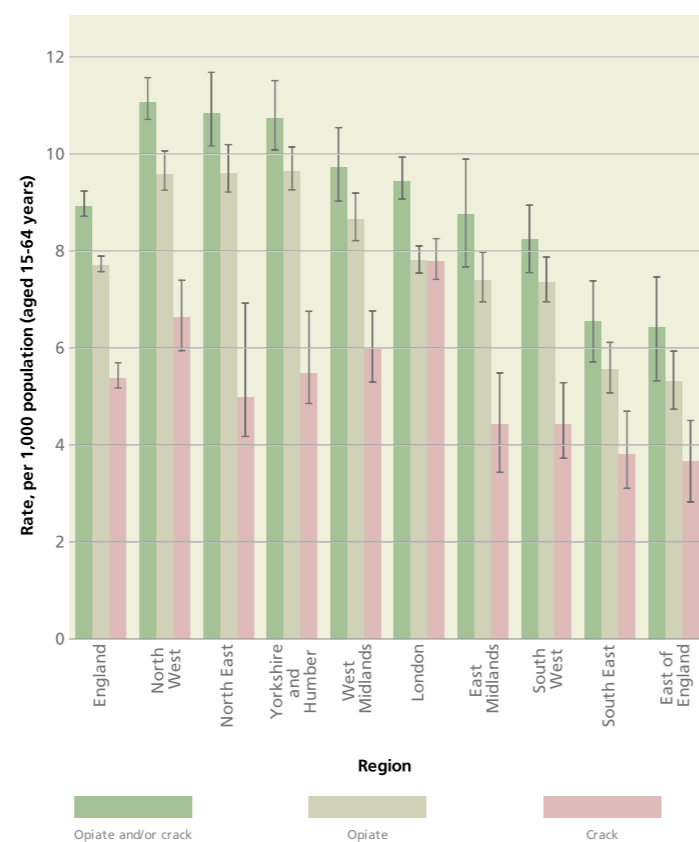
There were an estimated 306,150 opiate and/or crack cocaine users in 2009/10¹. The regions with the highest rates are the North West, North East, and Yorkshire and The Humber. Estimates of opiate and/or crack cocaine use by local authority indicate the highest rates are found in urban areas, with the worst performers having rates over 2.5 times above the national average. There has been a general increase in drug-related deaths over the last 18 years, particularly among males aged 20 to 69.

Figures from drug treatment services indicate that just under 28,000 users (or 43% of the total) exited the treatment system free from dependency in 2010/11. This is more than double the percentage for 2005/06².

1 Estimates of the Prevalence of Opiate Use and/or Crack Cocaine Use, 2009/10: Sweep 6 report. University of Glasgow and University of Manchester, 2012.

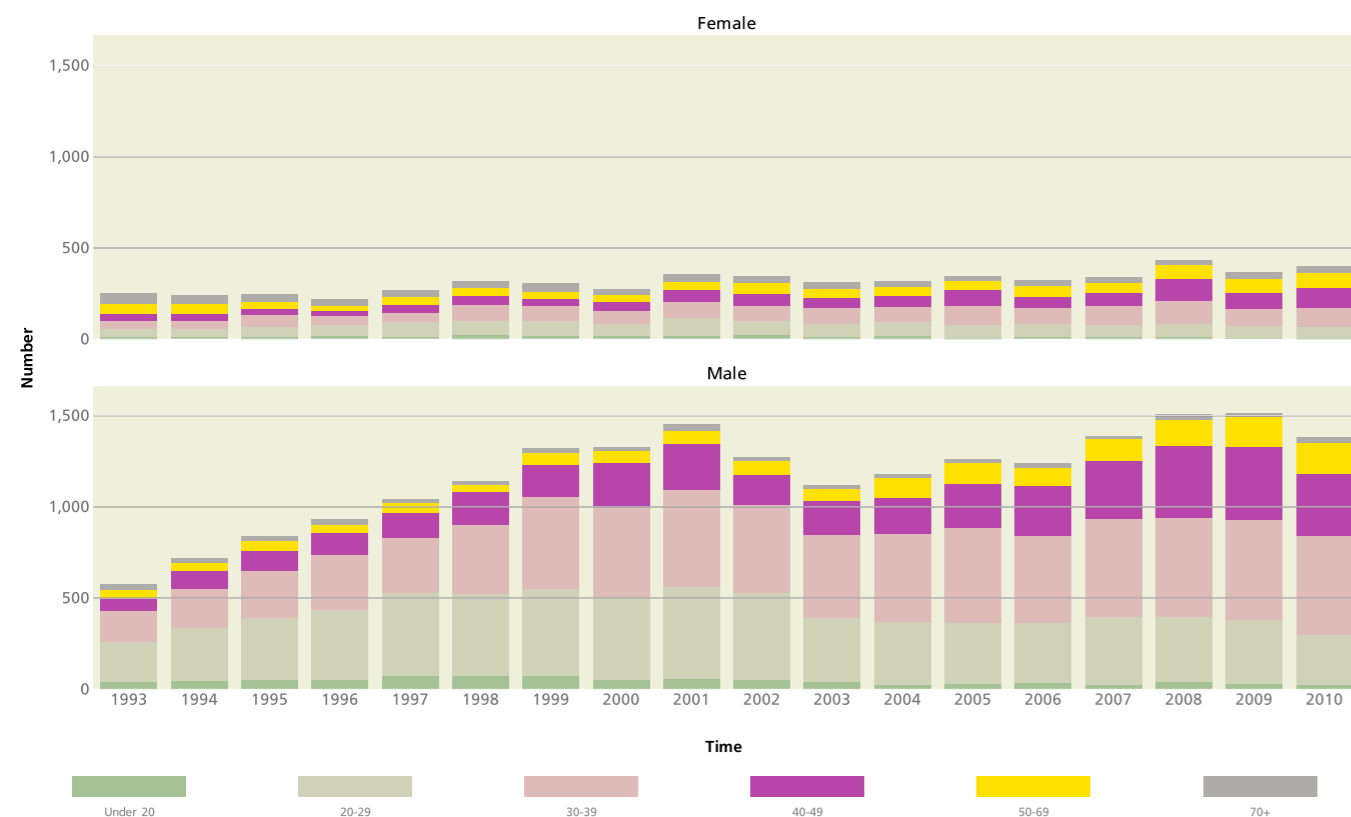
2 Statistics from the National Drug Treatment Monitoring System (NDTMS), 1 April 2010– 31 March 2011. National Treatment Agency, 2011.

Prevalence of opiate and/or crack cocaine use by region, England, 2009/10



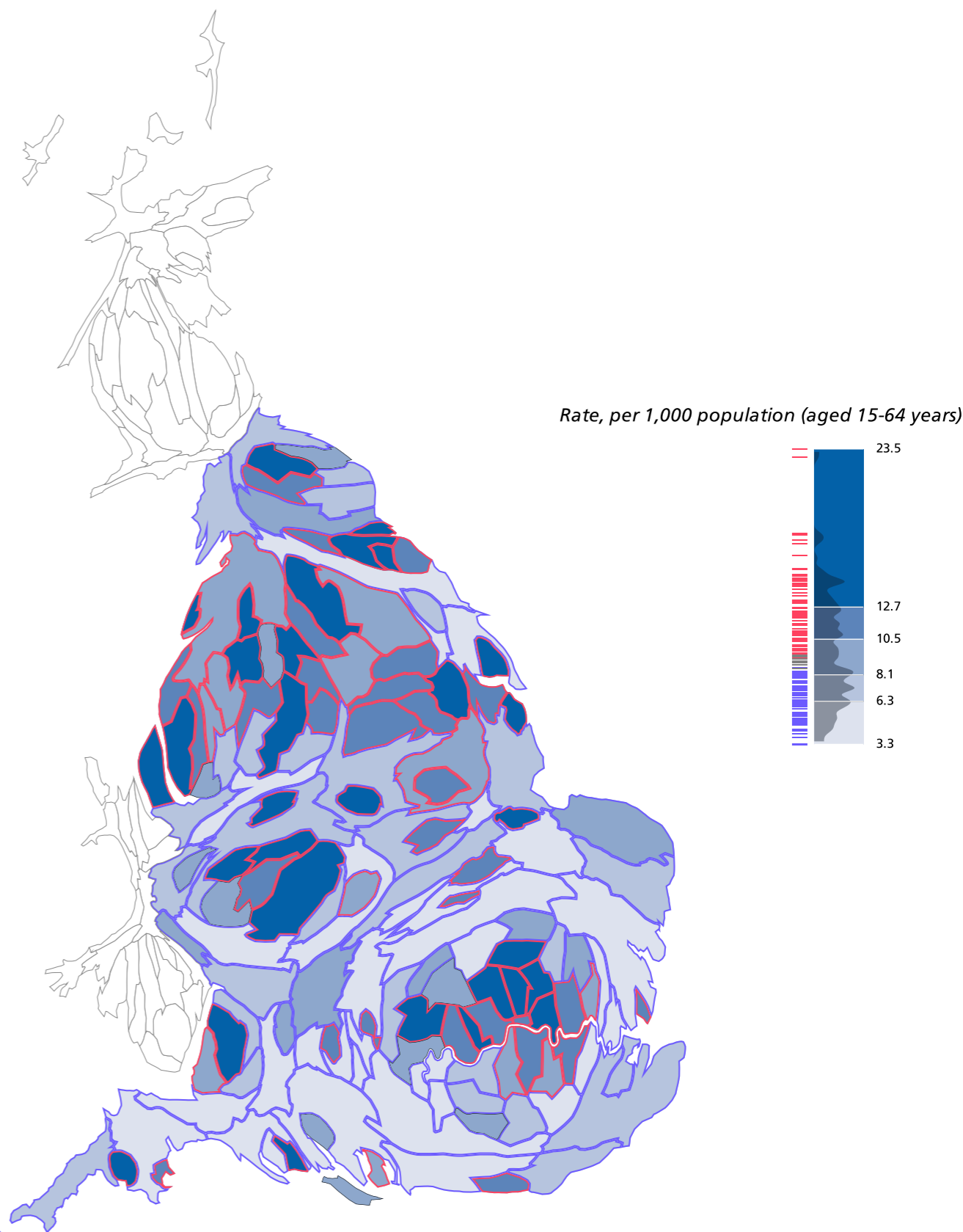
Source: National Treatment Agency (NTA).

Trend in drug-related mortality by age and sex, England and Wales, 1993 to 2010



Source: Deaths Related to Drug Poisoning in England and Wales, 2010. ONS.

Opiate and crack cocaine use rate by upper tier local authority, England, 2009/10



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

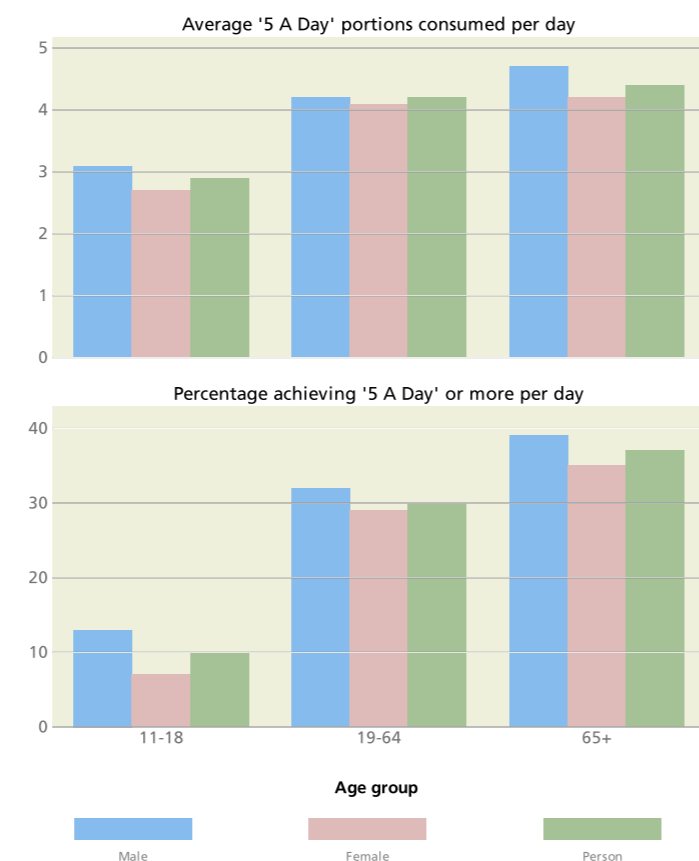
High levels of energy intake without sufficient physical activity can lead to obesity and increase the risk of diabetes, cardiovascular disease, high blood pressure, some cancers and osteoarthritis. Excessive sugar intake is a particular concern, but is often only one source of unhealthy energy intake. High levels of salt consumption are associated with an increase in blood pressure which is a risk factor for heart disease and stroke. Diets high in saturated fat also increase cholesterol levels, another heart disease risk factor.

Low nutrient intakes can cause health problems. For example, inadequate folic intake in the first four weeks of pregnancy increases the risk of neural tube defects, while low vitamin D intake increases the risk of rickets.

Eating plenty of fruit and vegetables reduces the chance of developing a range of health problems. Recent estimates suggest that fruit and vegetable consumption increases with age, but that even among those aged 65 and over, the average '5 A Day' portions consumed is 4.4. Only 10% of those aged 11 to 18 achieve the recommended number of '5 A Day' portions, compared to 30% of those aged 19 to 64, and 37% of those aged 65 and over.

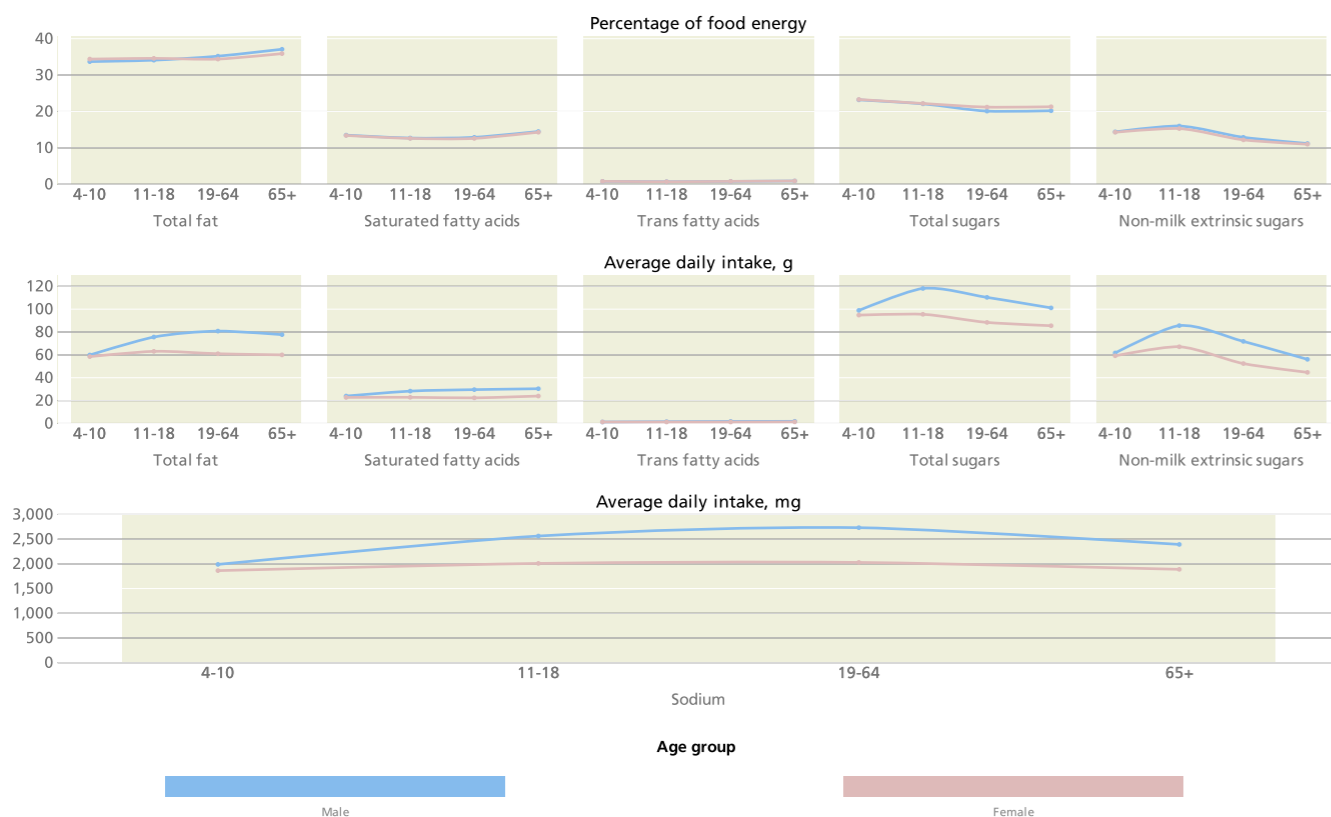
Modelled estimates indicate that the highest percentages of adults eating healthy diets are found in several London boroughs and in parts of the South East and East of England.

Fruit and vegetable consumption, UK, 2008/09-2009/10



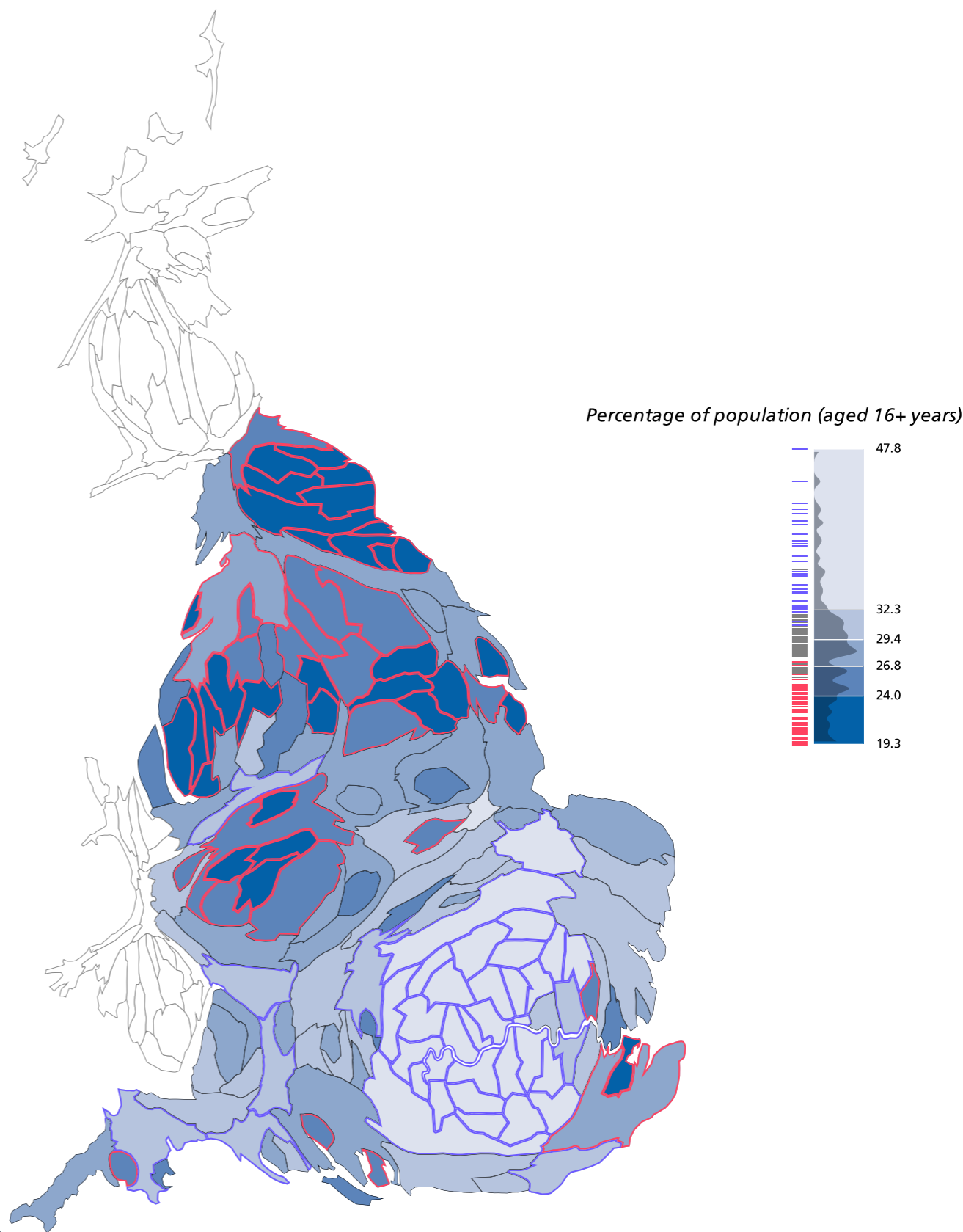
Source: National Diet and Nutrition Survey.

Nutrient and sodium intake by age and sex, UK, 2008/09-2009/10



Source: National Diet and Nutrition Survey.

Healthy eating prevalence by upper tier local authority, England, 2006-08



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Poor sexual health is responsible for significant levels of morbidity within the population, while teenage pregnancy can result in poor child and maternal health and wellbeing outcomes. Teenage parents and their children are also more likely to live in poverty.

Some groups have sexual behaviours that put them at particular risk of STIs. A third of young people use condoms inconsistently; almost 50% of men who have sex with men report an episode of unprotected anal sex in the preceding year; some ethnic groups have higher levels of sexual risk behaviour; and alcohol and illicit drug use are associated with higher numbers of sexual partners and a reduced likelihood of using protection¹.

The distribution of sexual transmitted infections at local authority level shows that the highest rates are found in many London boroughs, and in urban areas across the North West, South East and elsewhere.

Young people have higher numbers of sexual partners, and inconsistent use of condoms, putting them at risk of unintended pregnancy and contracting a sexually transmitted infection.

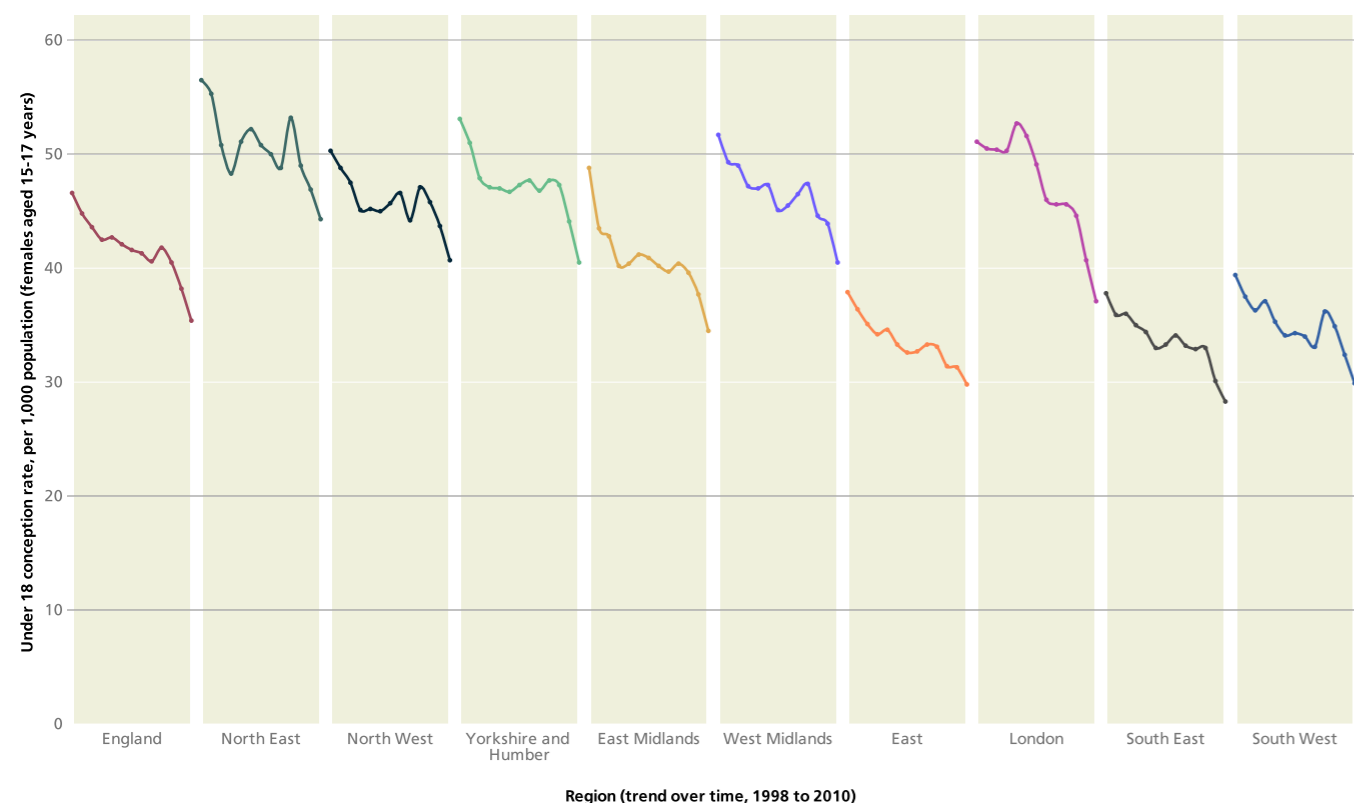
Teenage pregnancy rates fell by 24% across England between 1998 and 2010, although there remain marked differences in rates across the country. There is clear evidence of what works to reduce both poor sexual health² and teenage pregnancy³.

1 Progress and priorities – working together for high quality sexual health. Independent Advisory Group on Sexual Health and HIV.

2 Start Active, Stay Active. Department of Health.

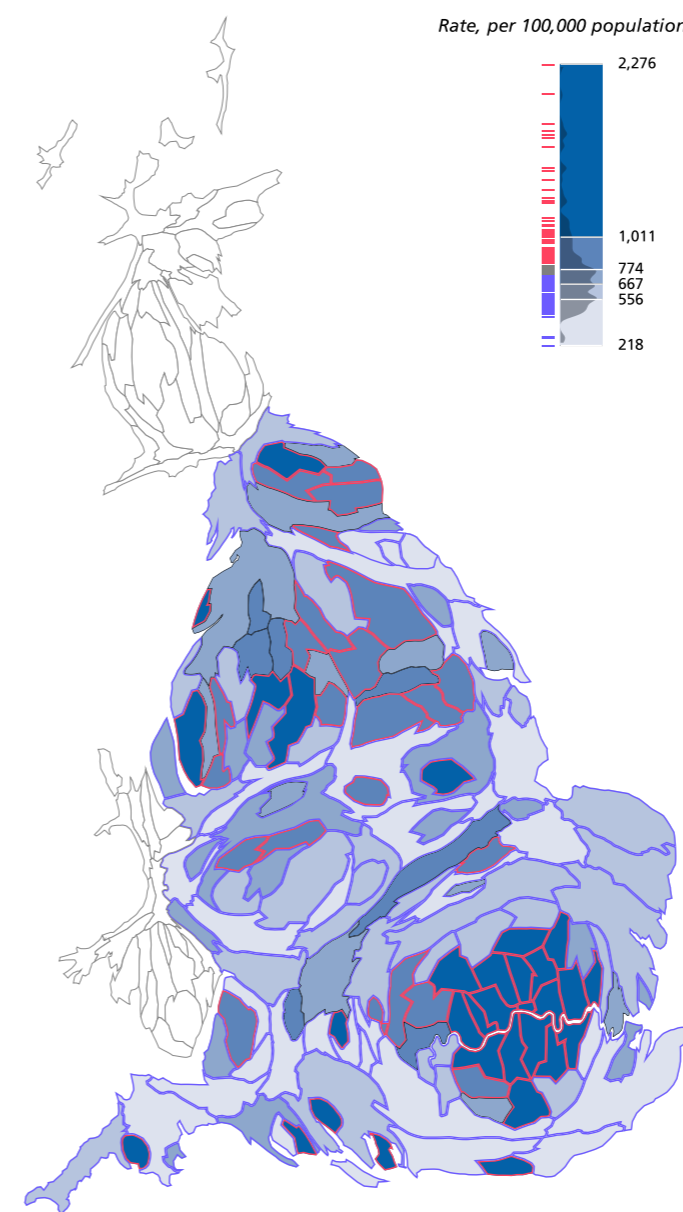
3 Teenage Pregnancy Strategy: Beyond 2010. Department for Education and Department of Health.

Trend in teenage pregnancy rate by region, England, 1998 to 2010



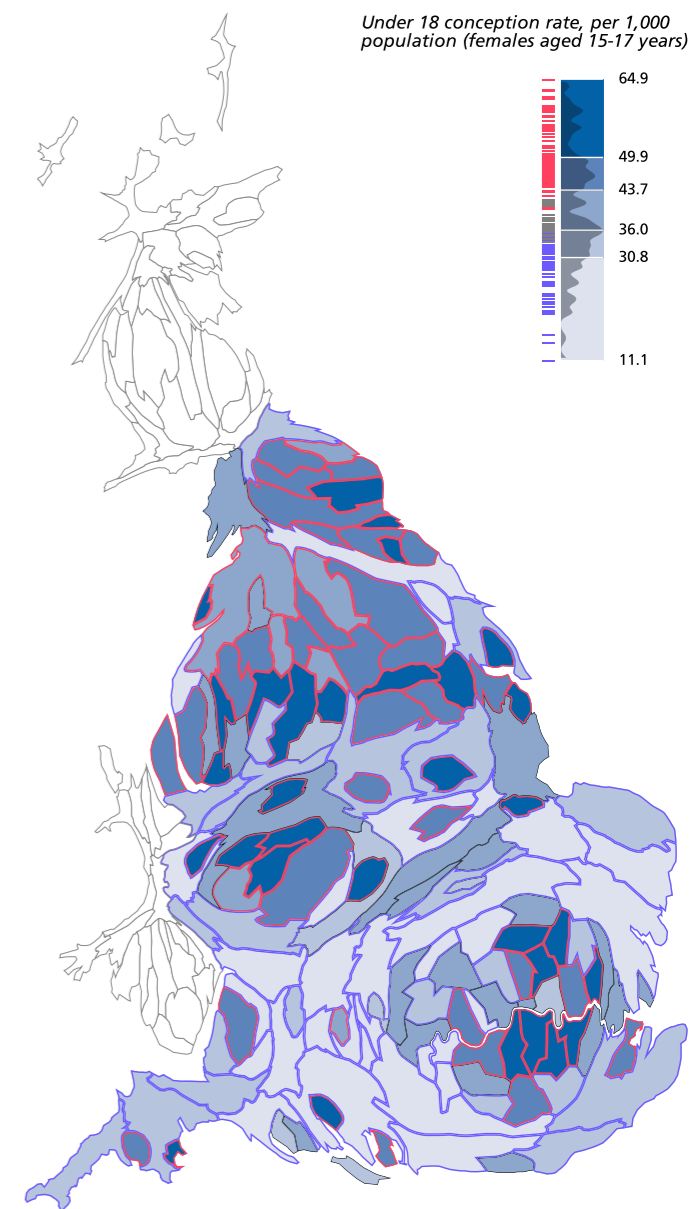
Source: Conceptions Statistics, England and Wales, 2010. ONS.

Acute sexually transmitted infection rates by upper tier local authority, England, 2010



Source: Genito-Urinary Medicine Clinic Activity Dataset (GUMCAD) and community setting (National Chlamydia Screening Programme (NCSP) & Non-NCSP/Non-GUM), HPA, 2010. Taken from 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Teenage pregnancy rates by upper tier local authority, England, 2008-10



Source: 2012 Local Health Profiles. Note: Data for City of London and Westminster London Borough and for Isles of Scilly and Cornwall unitary authorities have been combined

Urban outdoor pollution has a substantial impact on health. Although air pollution has decreased significantly since the 1970s as a result of technological advances and legislation, it remains a problem and can have an adverse impact on health, particularly among older people and those with existing conditions.

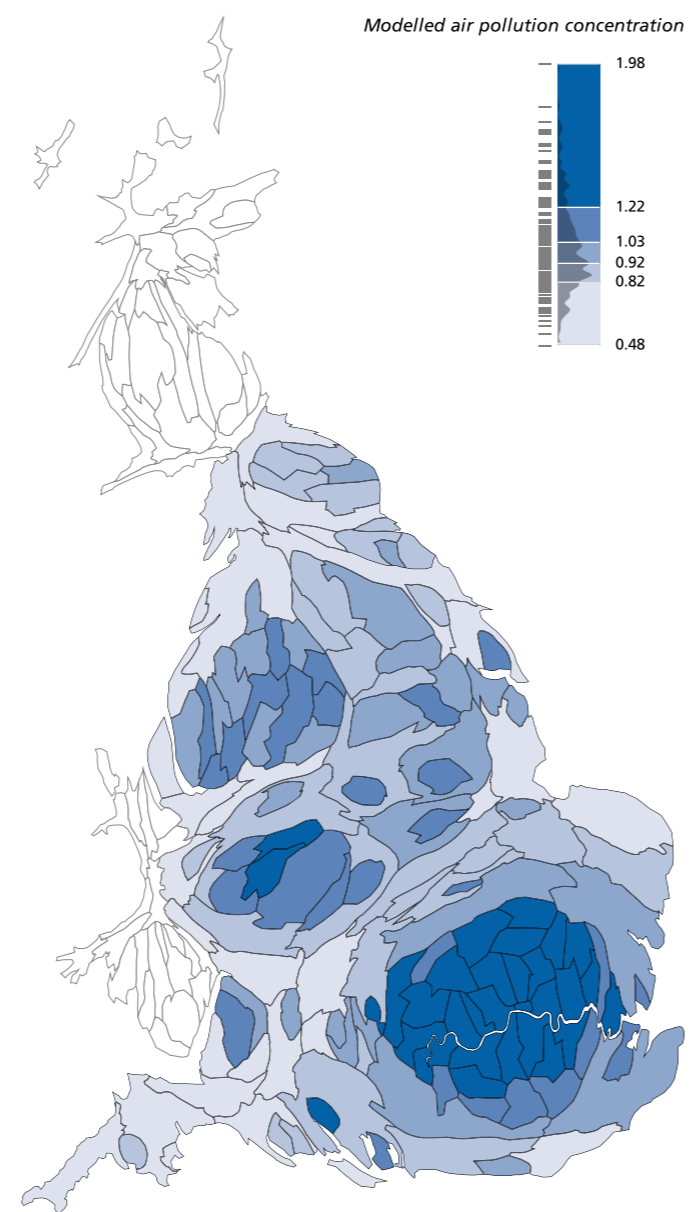
The majority of urban outdoor pollution is a consequence of our reliance on fossil fuels for transport and for generating heat and electricity. Particulate air pollution is composed of different chemicals, including toxic metals and organic compounds. Particulates are of particular concern as there is evidence that small particles are carried deep into the lungs where they cause inflammation and cause or exacerbate heart and lung disease.

Road transport is responsible for up to 70% of air pollutants in urban areas. Detailed local estimates are available¹, but average figures at local authority level suggest that the poorest air quality and highest particulate concentrations in England are found in and around London and Birmingham.

An estimated 29,000 deaths a year are attributable to air pollution, and the predicted health gain if all man made particles were removed from the air is an increase in life expectancy from birth of six months.

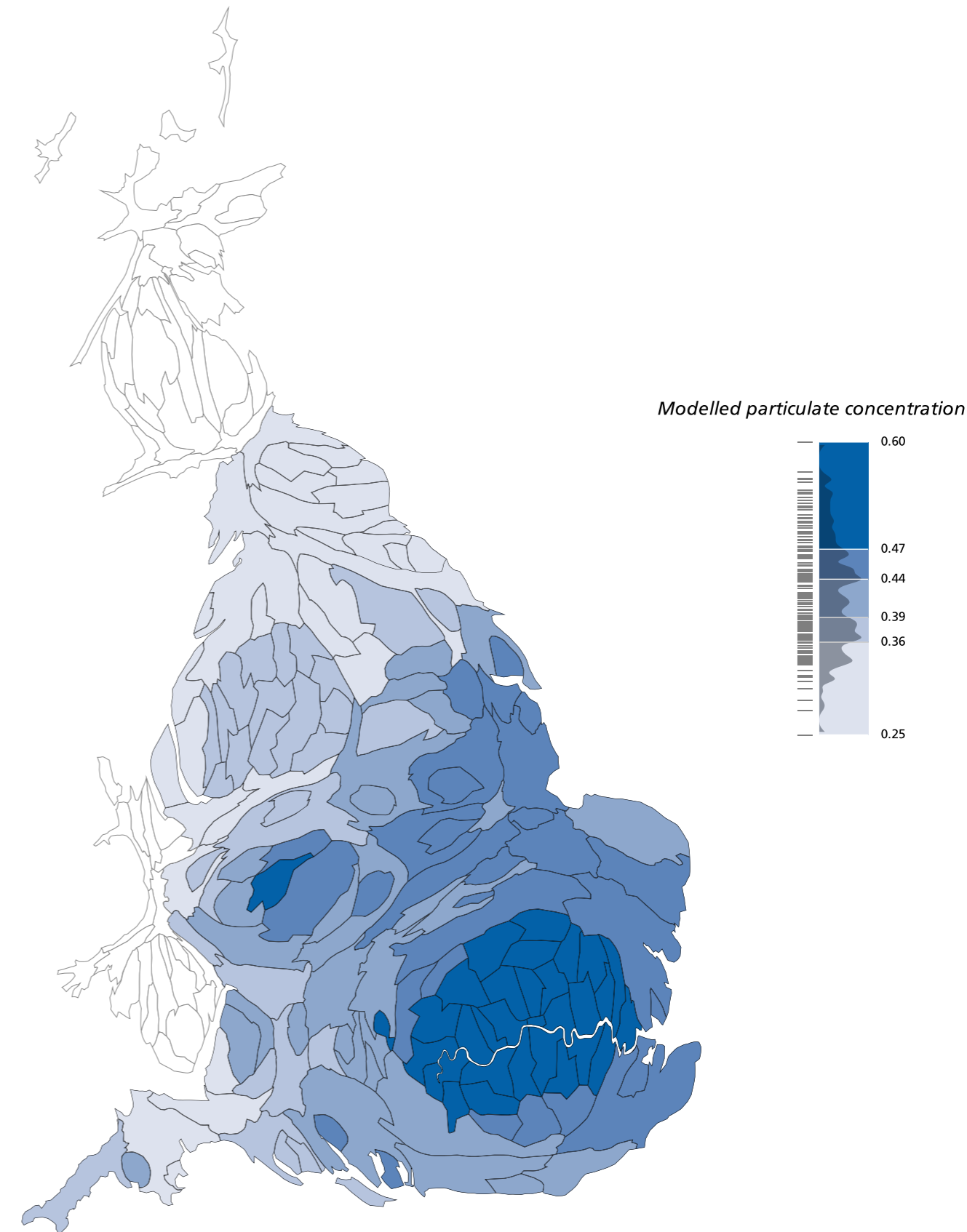
¹ <http://www.defra.gov.uk/statistics/environment/air-quality>

Air quality by upper tier local authority, England, 2010



Source: English Indices of Deprivation 2010, DCLG. (Estimates produced by Staffordshire University; Analysis by DH)

Particulate concentration by upper tier local authority, England, 2010



Source: English Indices of Deprivation 2010, DCLG. (Estimates produced by Staffordshire University; Analysis by DH)

Much of the available information on the health behaviours of the population of England focuses on the prevalence of specific individual risk factors. However, these factors often occur alongside one another, and many people have multiple lifestyle risks to their health.

These percentages vary by age group and sex. Information on the clustering of seven lifestyle risk factors – smoking, binge drinking, low fruit and vegetable consumption, obesity, diabetes, high blood pressure and raised cholesterol¹ – is available from the Health Survey for England. Approximately 25% of those aged 16 and over report one lifestyle risk factor, 33% two risk factors, 23% three risk factors and 12% four or more risk factors. Only 7% of adults have no risk factors.

Among males, the percentage with four or more risk factors increases from 3.5% of 16 to 24 year olds, to 21.4% of those aged 55 to 64, before declining to 11% of those aged 75 and over. Among females, the percentage with four or more risks rises from 5.5% of 16 to 24 year olds, to 16.2% of those aged 65 to 74, before falling to 12.7% of the 75 and over group. For both sexes, the increase between the first two age groups is mainly due to the rise with age in the prevalence of raised cholesterol, hypertension, obesity and diabetes.

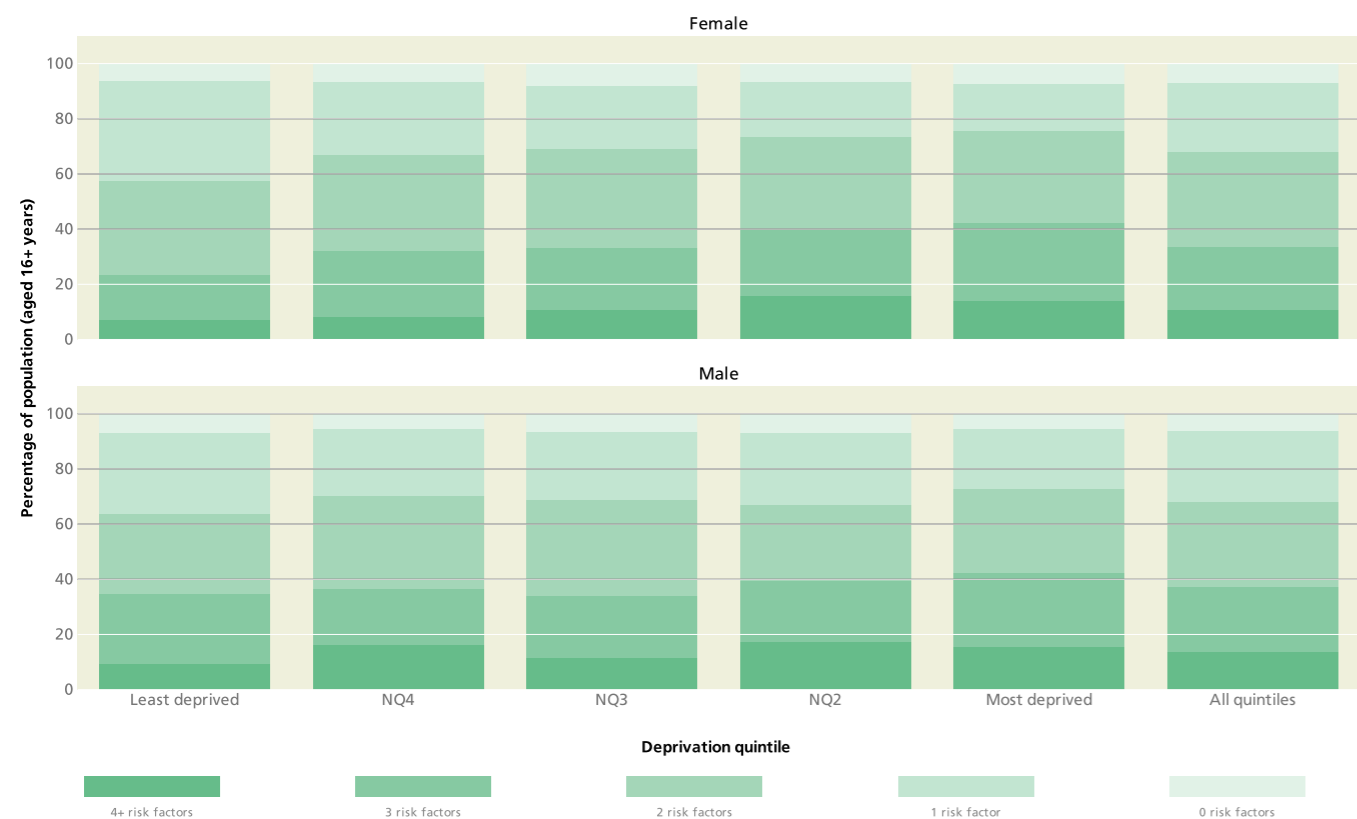
There is a socioeconomic gradient in the percentage of adults with multiple risk factors. Among males, the percentage with three or more risks rises from 34.7% in the least deprived national quintile to 42.4% of the most deprived quintile. Among women, the corresponding increase is from 23.4% and 42.3%. The differences between the quintiles are mainly due to the higher prevalence of smoking, obesity and diabetes in more deprived areas.

There is evidence that the percentage of adults with multiple risk factors is decreasing. For example, 47.9% of males had three or more risks in 2003 compared to 37.5% in 2010. Among females, the figure fell from 39.1% to 33.7% over the same period. These improvements are mainly due to the reduced prevalence of raised cholesterol, hypertension and smoking, although over the same period, there has been a less positive decline in healthy eating levels, an increase in binge drinking, and increases in the prevalence of obesity and diabetes.

These results show that the majority of adults in England have multiple lifestyle risks to their health. Understanding the way these factors interact is central to increasing the effectiveness of interventions to improve health and wellbeing, and to reducing inequalities.

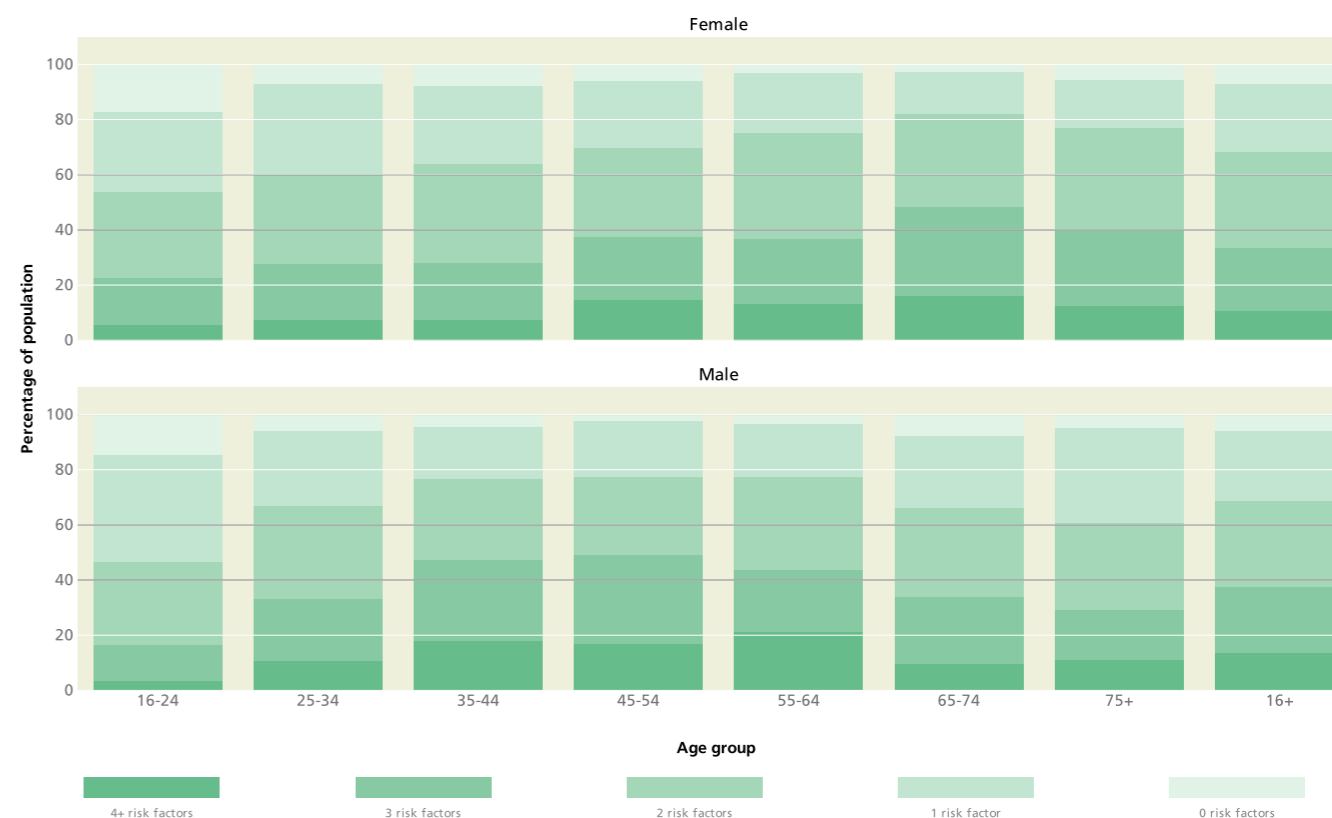
¹ Changes to the way the Health Survey for England measures physical activity levels meant it was not possible to include this risk factor in the analysis. All the figures presented are weighted for non-response.

Multiple risk factors by deprivation, England, 2010



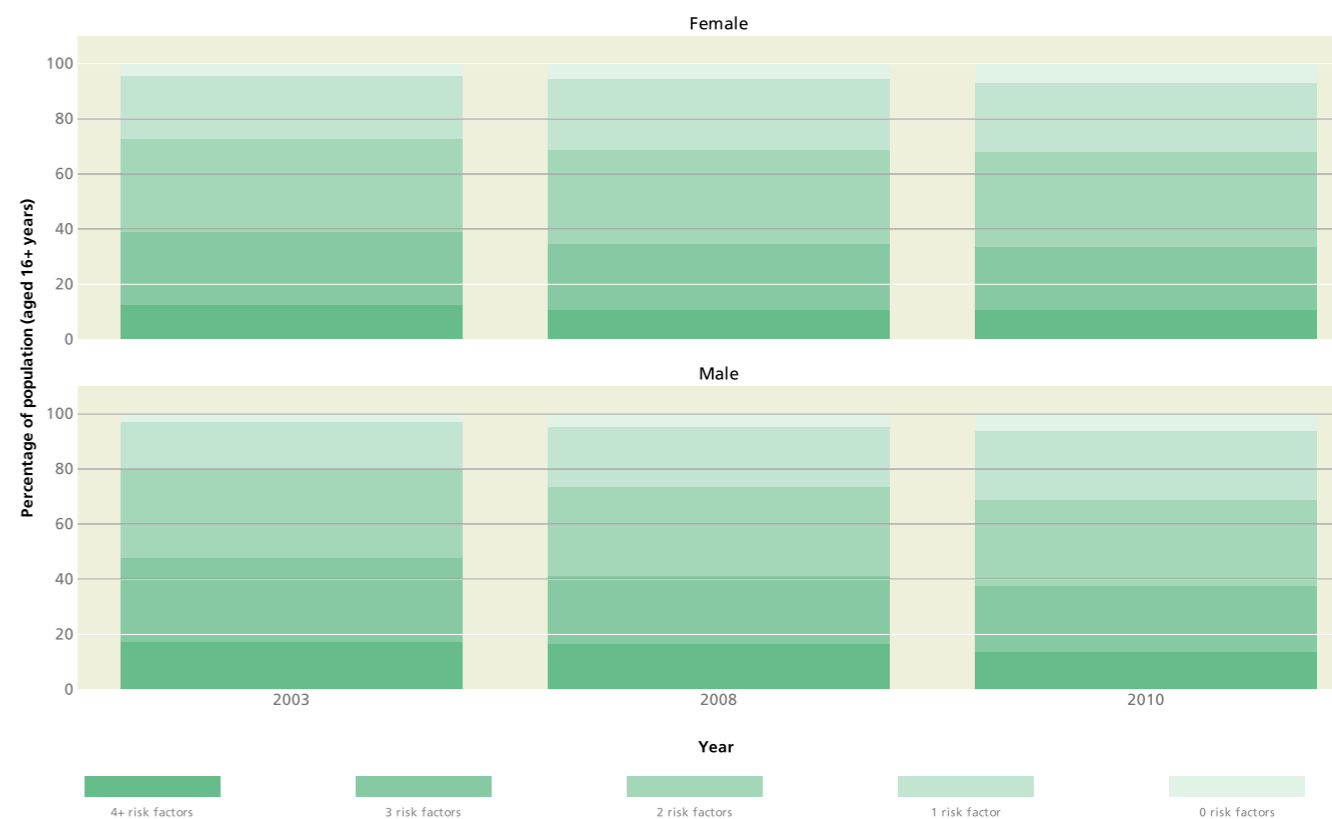
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Multiple risk factors by age and sex, England, 2010



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Trend in multiple risk factors by sex, England, 2003, 2008 and 2010



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