Public Health England

Protecting and improving the nation's health

From evidence into action: opportunities to protect and improve the nation's health

October 2014

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Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services.

October 2014

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Foreword

We have an ambition: for people of this country to live as well as possible, for as long as possible. But on current trends, we are going to fall short because we face an epidemic of largely preventable long-term diseases. We may be living longer, but we – and future generations – risk spending many of these extra years in poor health unless we do a better job of tackling major risks such as obesity, poor diet, physical inactivity, smoking, and excessive alcohol consumption. If we fail, it will be the most vulnerable and the most deprived communities who will bear the heaviest burden.

It will be neither effective nor feasible to attempt to solve these problems by ramping up our spending on hospitals, clinicians and services. Resources are scarce and all sectors, from the NHS to local authorities, are under huge pressure from constrained budgets and rising demand.

What we need is a fundamentally new approach to creating and sustaining health, mental and physical, at every stage of life and across all our communities.

It is an approach that acknowledges that our health is shaped by where and how we live: by our jobs, families, homes; but that also recognises the power of individuals to change their lifestyles, especially if they get the right support at the right time.

We have an opportunity, with the creation of Public Health England, the NHS Five Year Forward View and the momentous return of public health to local authorities, to put this approach into practice.

We have looked to the evidence to identify where we should focus our efforts. This report sets out seven key priorities where, through working closely with our partners in local and national government, with the NHS, the voluntary and community sector, and with industry and academia, we can make a significant difference over the coming five to ten years. In real time, these will not be quick wins, but in public health time, which is measured in decades, they could be.

None of this is easy, but we will demonstrate that it is achievable. First, because we know what success looks like – take, for instance, the interventions that have led to dramatic falls in death rates from heart disease over the past decade[1] as proof of what is possible.

Second, because we have opportunities to do things differently. These we must seize because they have the potential to magnify the impact of what we do in public health. In other areas of our life think of the power and reach of digital technology. Now combine that with new insights from the behavioural sciences, and it is clear we are on the cusp of a revolution in how we promote healthy lifestyles. Likewise, new evidence and new knowledge – about the importance of the early years, for example, or the links between mental and physical health – could transform the scope of public health.

So this provides the opportunity for public health to think big. We won't be alone because there is an unprecedented consensus that prevention and early intervention belongs at the heart of this country's health agenda. That is why, at Public Health England, we are working hand in hand with local government to promote the uptake of all those effective interventions to prevent disease and improve population health. That is why we will help to deliver the NHS Five Year Forward View. And that is why we seek to enlist the power of employers to promote the health and productivity of their workforce.

To improve the population's wellbeing we need these ideas to take root locally, in people's neighbourhoods and communities. So it is vital that, as they respond to local needs and priorities, we support local authorities – drawing on the expertise of the Local Government Association and SOLACE – to tap into the power of 'place-based approaches' and community development, harnessing the collective assets and resources available locally to address local needs.

This document sets out our commitment to support our partners with a programme of work that:

- ensures credible, evidence-based advice is available on the key issues relating to the public's health
- develops our ability to engage and support the public in making healthier choices
- mobilises support for broader action on improving the public's health

What we are looking to stimulate is a new movement that focuses on creating and protecting health, not only treating ill-health. This document is an invitation to our colleagues across the health professions, local and national government, the voluntary and community sector and the public, to join us in applying the evidence of what we know works to achieve the step-change in the nation's health that we all seek.

David Heymann
PHE board chair

Duncan Selbie
PHE chief executive

Our health today

In recent years, we have seen significant increases in access to and the quality of healthcare, backed by significant growth in resources. Life expectancy continues to rise as premature mortality for eight out of ten of the commonest causes of death falls.[2]

Yet, as the Department of Health set out in *Living Well for Longer*, we are falling further behind other comparable countries in relative terms; we are living longer but with many of our later years troubled by ill health. As a nation we still continue to see deep-seated inequalities between those with the most and those with the least in our society, and across different regions of our country. In addition, the cost of ill health is increasing – treating type II diabetes costs the NHS £8.8 billion a year[3] – and our increasingly sedentary lifestyles – we are 20% less active than we were in 1961[4] – mean we need to take action now.

We see these trends despite universal access to the NHS and despite the significant increases in resources allocated to the NHS in recent years.[5] The truth is that healthcare has a relatively limited impact on our health. The environment around us, our genetic inheritance, how we live our lives and the opportunities we have together largely determine our health.[6] International studies suggest healthcare contributes only about 10% to preventing premature death[7] (Figure 1), although this varies in different settings.

As our joint work with the Royal Society for the Prevention of Accidents, *Delivering accident prevention at a local level in the new public health system*, showed, injuries continue to be a significant cause of disability and early deaths, particularly for the young and old. We also know there are considerable inequalities in the burden of unintentional injuries across the country.

Proportional contribution to premature death[8]

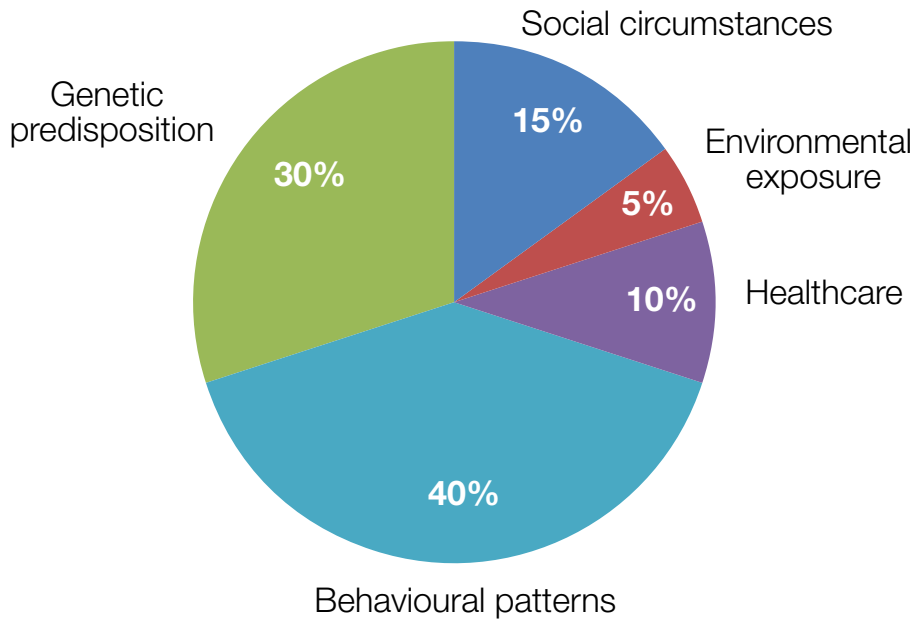


Figure 1 In the US, McGinnis et al show how healthcare plays an important though proportionately small role in preventing early deaths. Similar studies have supported these findings in the UK. Improving how we live our lives offers far greater opportunity for improving health.

In order to improve the surveillance data for injuries, we will step up our work with emergency medicine colleagues to develop potentially powerful new data feeds from A&E.

We need a new approach: where we encourage everyone to gain more control of their health; where prevention and early intervention are the norm, recognising that action on health inequalities requires action across all the wider determinants of health; and where the assets of individuals, families and communities are built upon to support improved health.

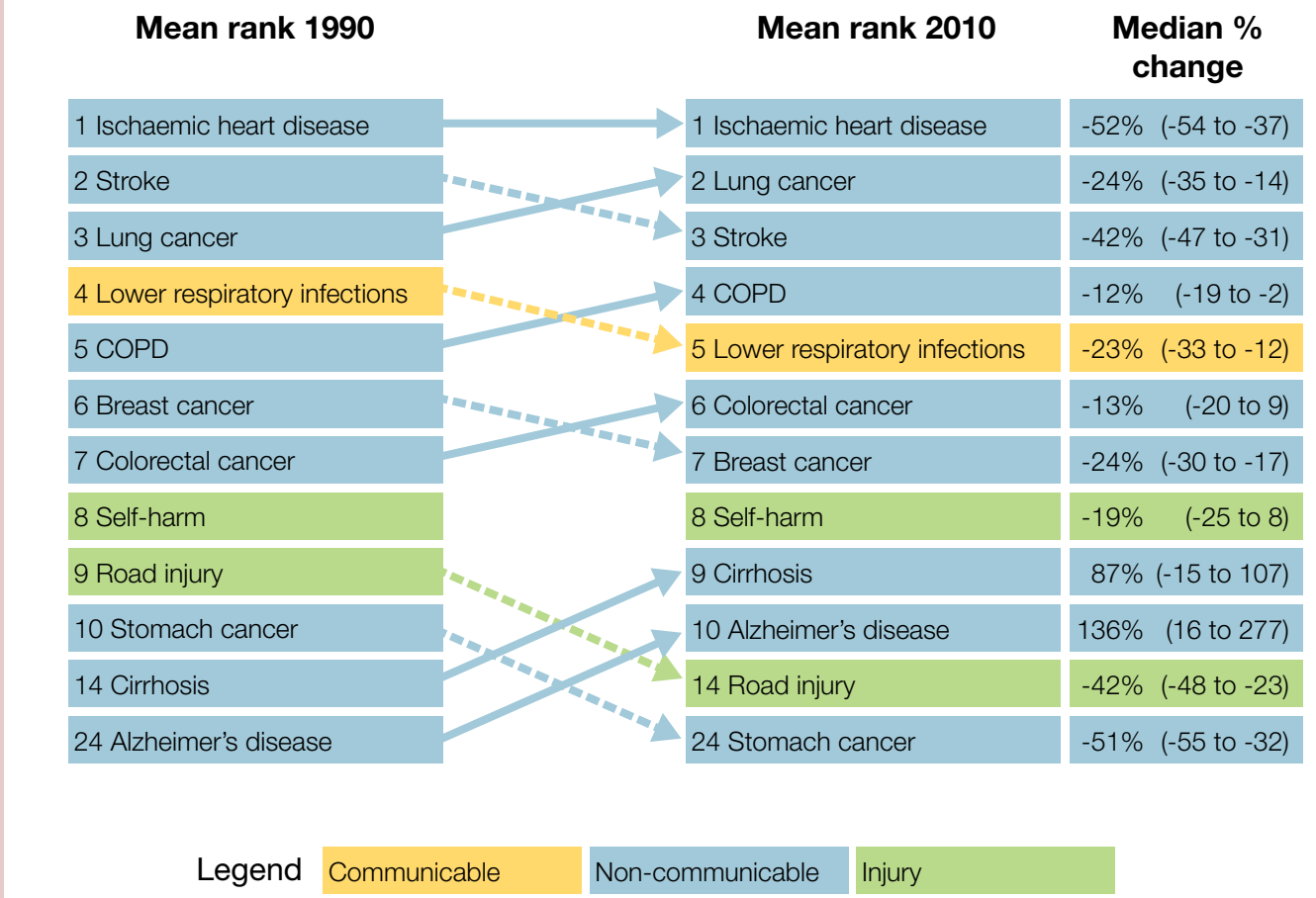


Figure 2 From 1990 to 2010, the years of life lost to ischaemic heart disease, stroke and lung cancer[9] reduced by 52%, 42% and 24% respectively, but these remain the top three causes of premature mortality in the UK.

Health drivers: how we live and the circumstances of our lives

The way we live our lives has a major impact on our health. The *Global Burden of Disease* study demonstrates the impact on our health of poor diet, obesity, lack of exercise, smoking, high blood pressure and too much alcohol. The study also demonstrates that mental illness is the largest single cause of disability and represents 23% of the national disease burden in the UK.[10]

The circumstances in which we find ourselves also have an impact on our health – they impact on the opportunities we have to make healthy choices.

While individuals' behaviours do matter (for example, studies show around half of the health inequalities between rich and poor are the result of smoking[11]), the reality is that our health is impacted by a range of wider determinants including:

- good employment
- higher educational attainment
- safe, supported, connected communities
- poor housing and homelessness
- living on a low income
- social isolation, exclusion and loneliness
- stigma and discrimination

Improving health and closing the gap between those with the most and those with the least requires action across all of these.

Due North,[12] the report of the inquiry on health equity for the North, sets out fresh insights and thinking on how we might do this. And we must recognise the link between mental illness and physical health. Essentially, those with mental illness die on average 15-20 years earlier than those without. The life expectancy of people with serious mental illness in 2011 was comparable to that of the general population in the 1950s.[13]

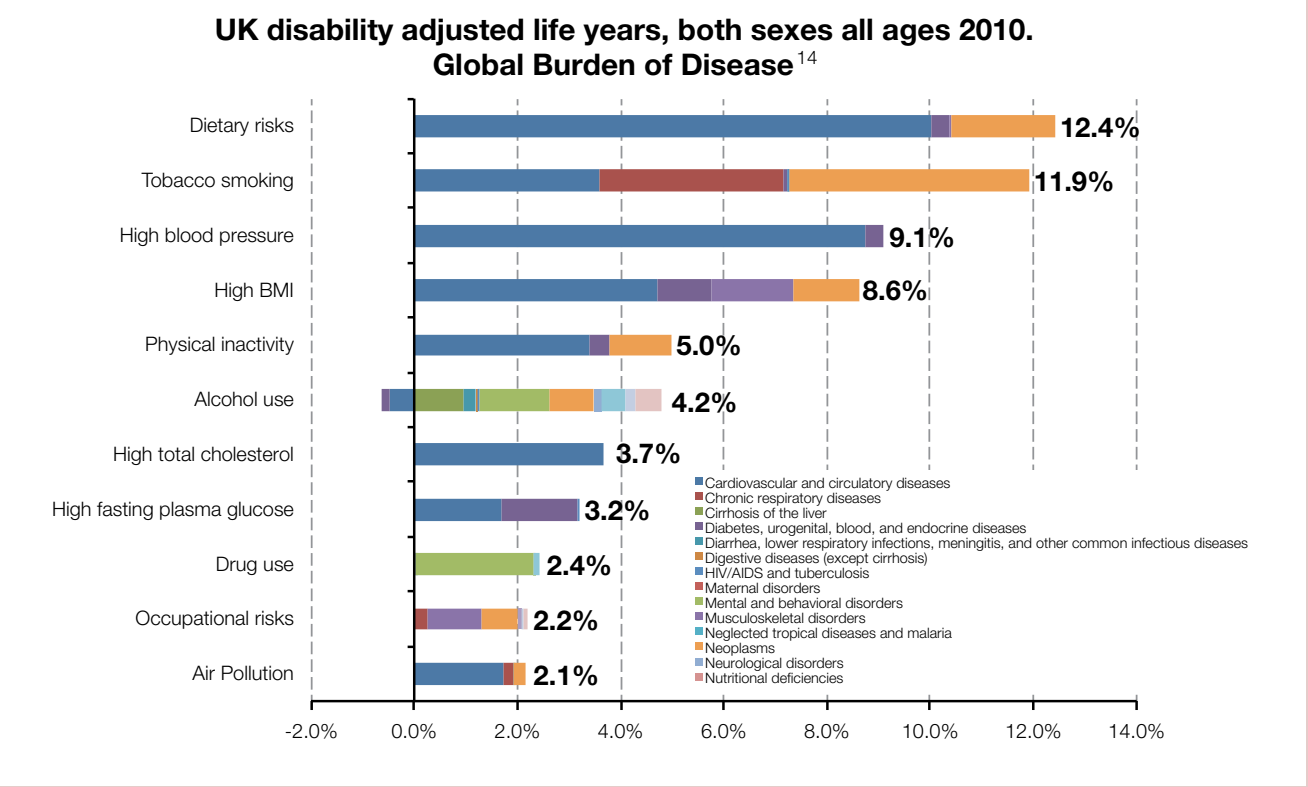


Figure 3 The way we live has a significant impact on our health. Good diet and more exercise would help us live healthier lives.

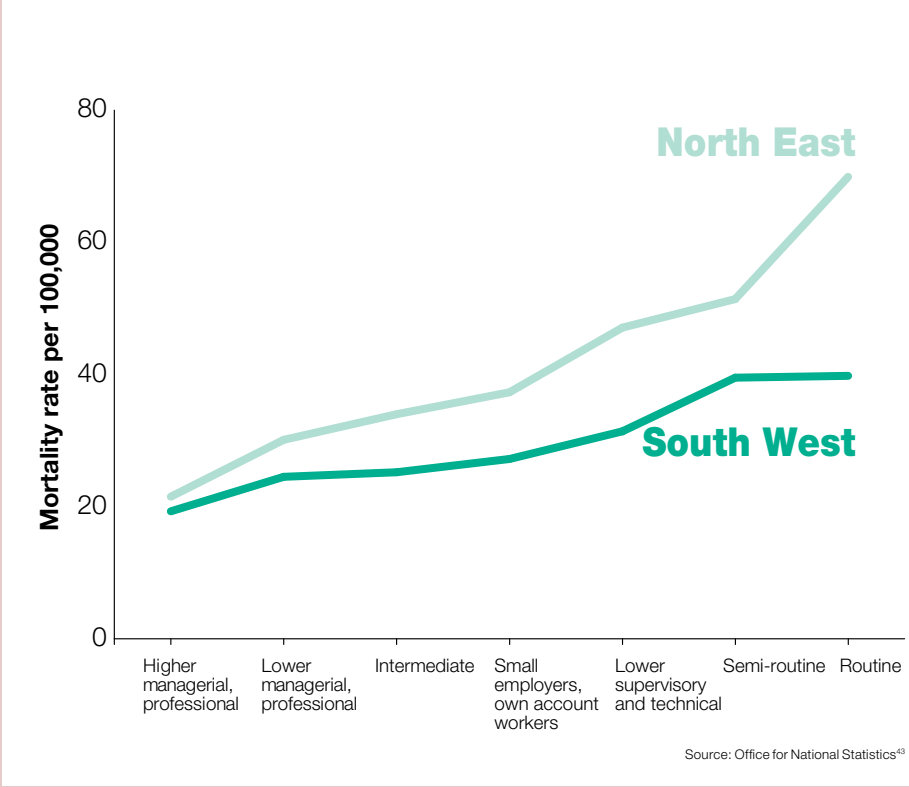


Figure 4 There are stark health inequalities[15] stemming from unemployment and socioeconomic status, as well as geography across the country.

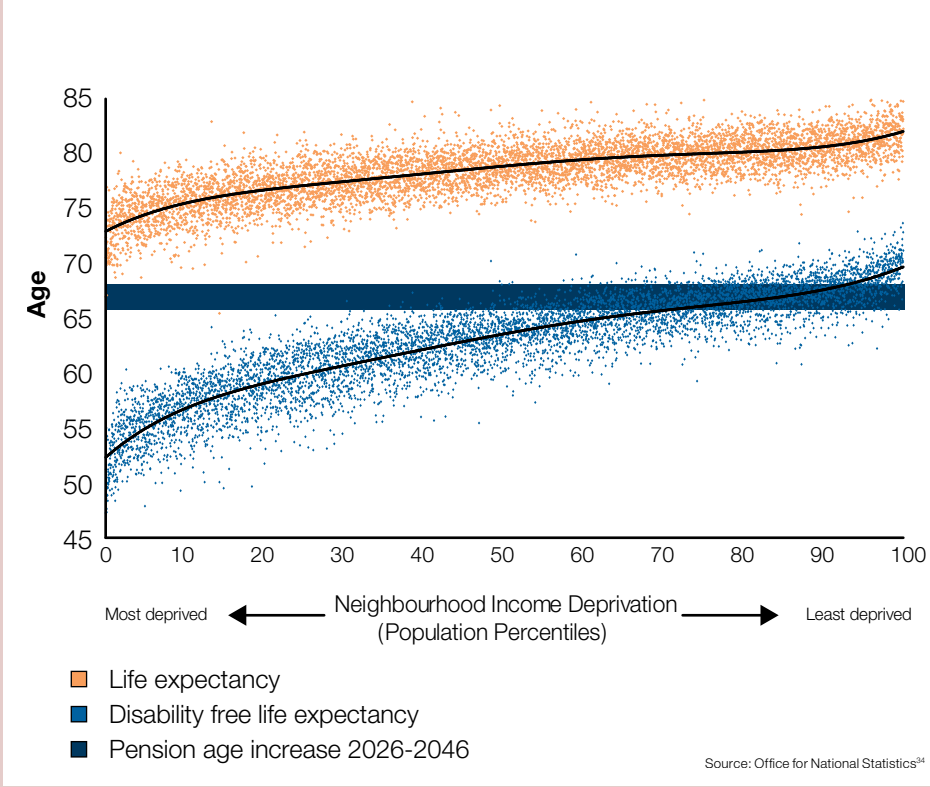


Figure 5 Although life expectancy[16] continues to increase, we are living longer with disease as more and more of us live with long-term conditions.

Continuing to protect the public from threats to their health

Although we have seen very significant reductions in the burden of infectious disease and the impact of some environmental hazards, these remain a very significant risk to the public's health.[17]

The potential threats from infectious disease are diverse and challenging. TB, HIV and hepatitis C all continue to pose serious public health challenges within our population. We must also be alert to, and able to respond to, emerging infections such as the newly identified Middle East respiratory syndrome coronavirus (MERS-CoV). In doing this, we must retain a global outlook, recognising that in our increasingly connected world infectious disease could easily be carried from country to country. The Ebola outbreak in West Africa reminds us of the global impact of infectious disease and the need to maintain effective measures to identify and respond to outbreaks, both at home and abroad.

We will remain vigilant in preparing and planning for major outbreaks, ensuring we are able to respond early and effectively to new and emerging threats to our health. We are introducing new whole genome sequencing capabilities, which are allowing us to adopt new approaches to identifying outbreaks, understanding the transmission of infectious disease and to the management and prevention of outbreaks.

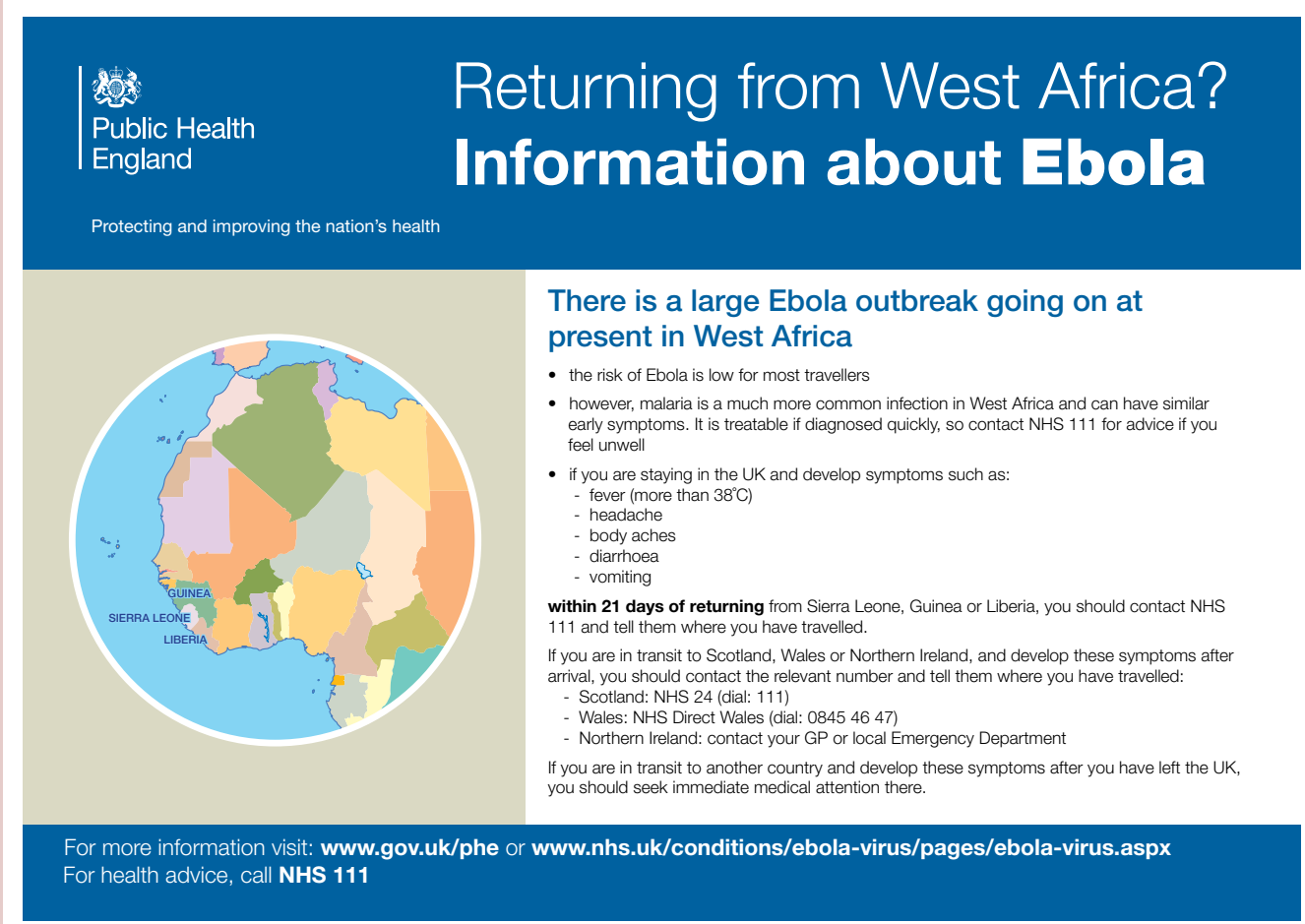


Figure 6 Ebola information poster published by Public Health England in response to the Ebola outbreak 2014, and displayed at major airports.[18]

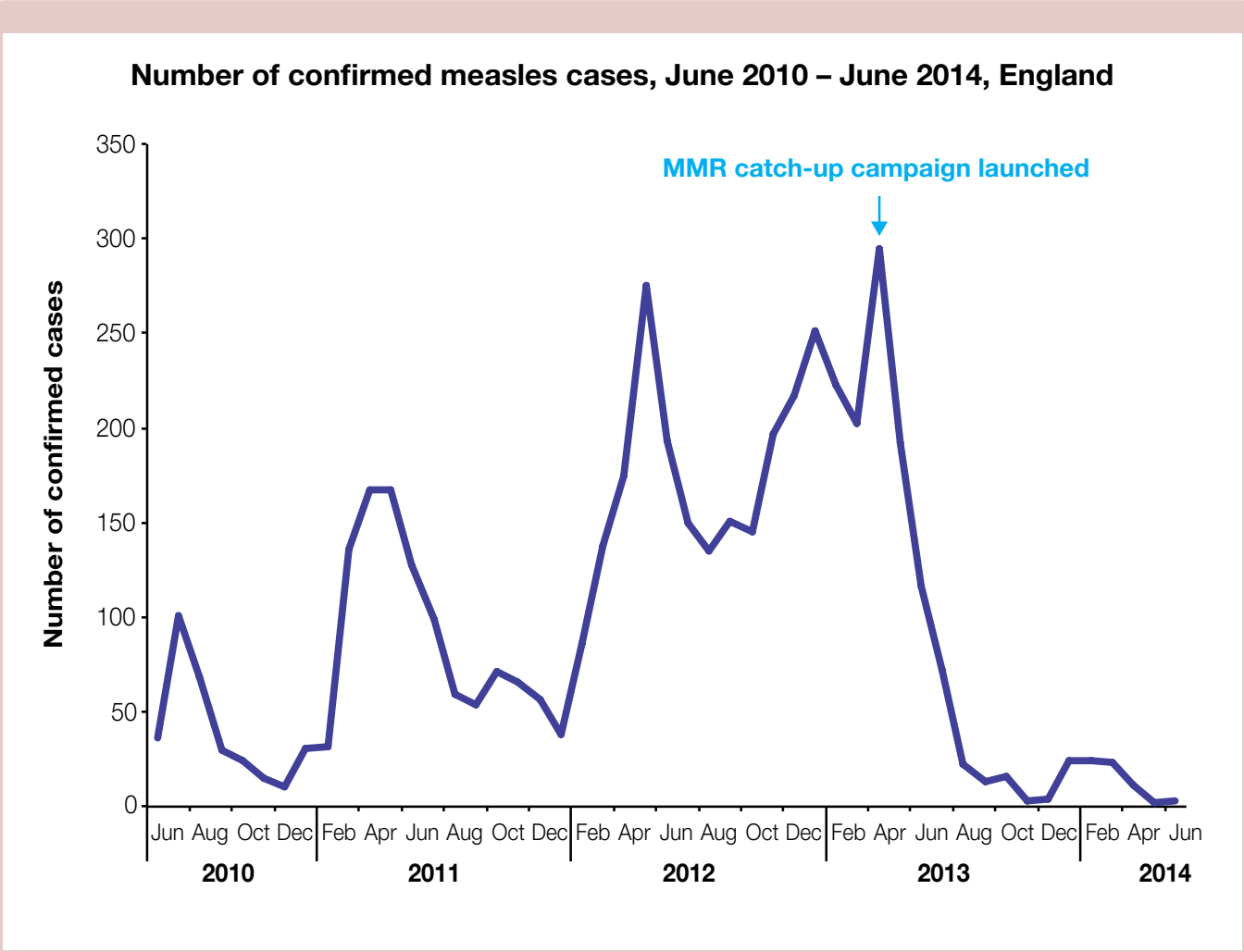


Figure 7 The successful introduction of a measles, mumps & rubella catch-up campaign to vaccinate unprotected children had an immediate impact on the numbers of cases of measles.[19]

Looking to the future

We have seen real successes in recent years, from reducing premature deaths from heart disease to reducing teenage pregnancies. But some of the key trends continue to go the wrong way. Across our population, obesity continues to rise and 62% of adults are now overweight or obese.[20] We are projected to be 35% less active in 2030 than we were in 1961,[21] and alcohol-related deaths have doubled over the last 20 years.[22] Alcohol and obesity are the leading causes of liver disease, the only major disease in the UK for which mortality is still increasing.[23]

We need to understand better what contributes to these trends which, in turn, will shape the health of our population. PHE will develop the capability to forecast the likely future direction of health trends – we aim to be the health equivalent of the Office of Budget Responsibility, with an authoritative analysis of the public's health in the long term. Initial modelling with the UK Health Forum considers the impact of obesity and smoking over the next 20 years.

If current trends persist, one in three people will be obese by 2034 (Figure 8) and one in ten will develop type II diabetes (Figure 9). Yet, if we could reduce obesity back to 1993 levels, five million cases of disease could be avoided (Figure 10).[24]

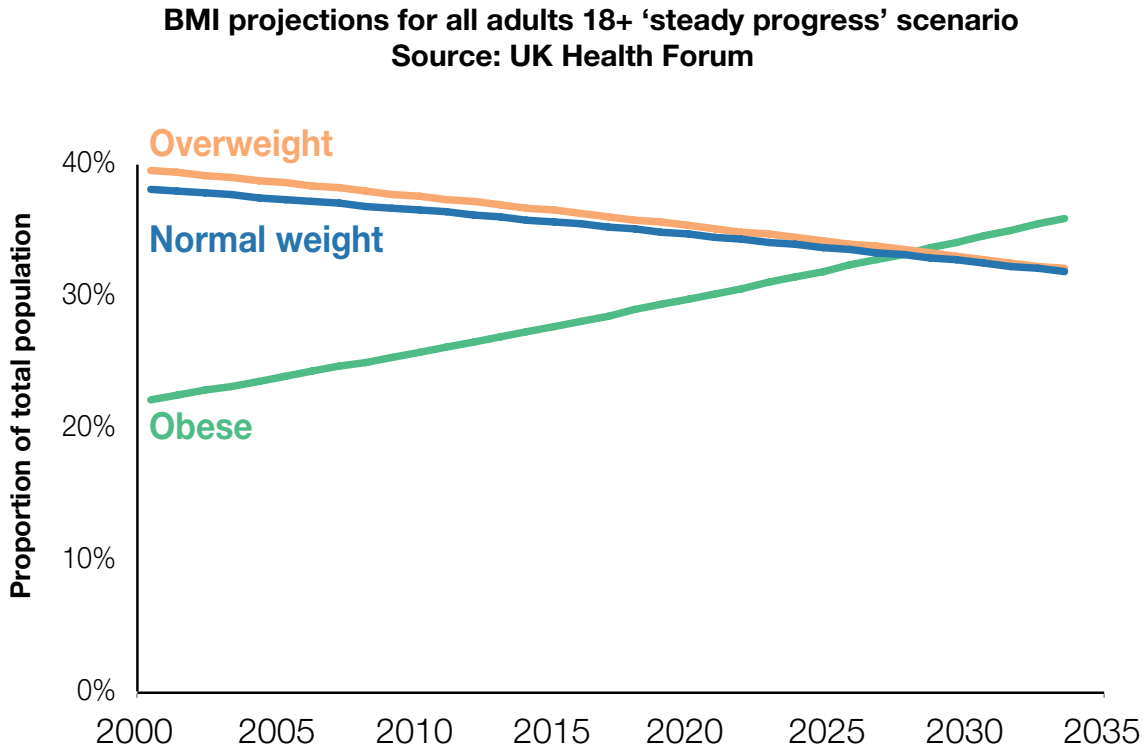


Figure 8 Body mass index projections for adults where current trends continue (based on Health Survey for England data 2000-2011).[25]

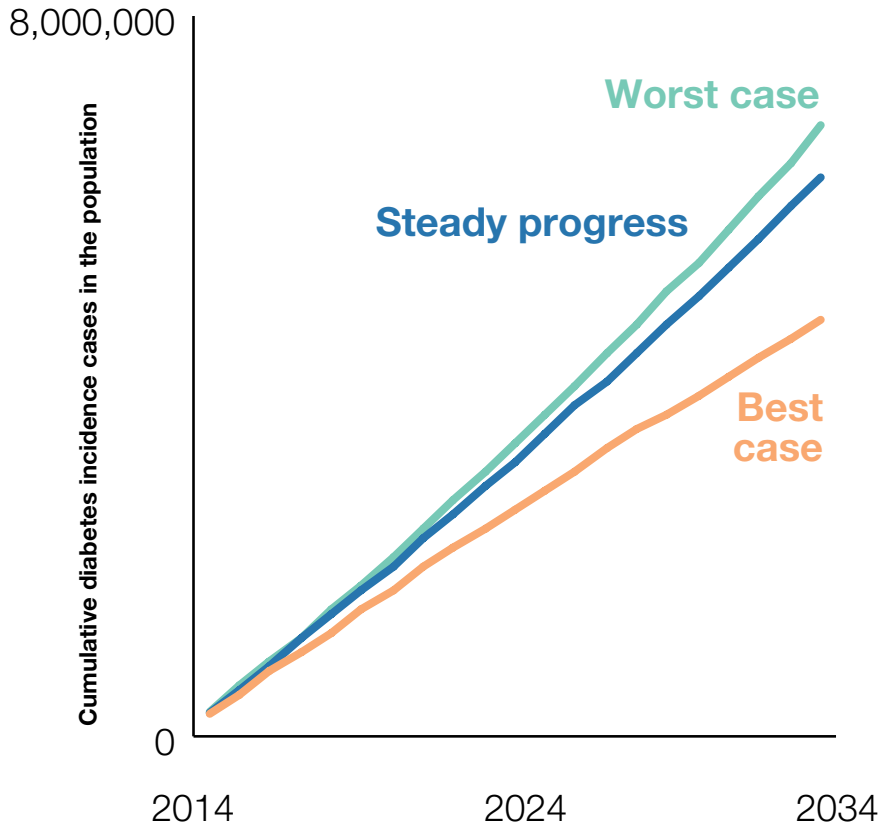


Figure 9 Projected type II diabetes incidence with different levels of intervention.[26]

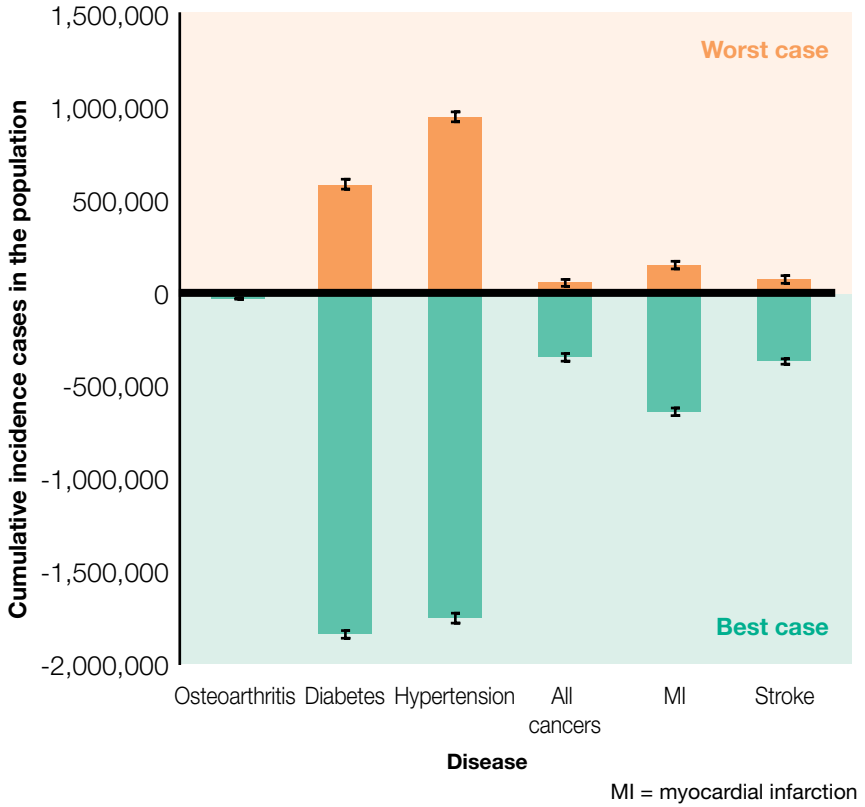


Figure 10 Initial modelling suggests that over five million incidences of disease could be avoided if we could get back to what we weighed in 1993 by 2034 rather than maintaining current trends.[27]

Our seven priorities

We have identified seven priorities where we will focus our efforts. These are supported by the evidence in the *Global Burden of Disease* study[28] that emphasises just how important these factors are from an epidemiological perspective in determining our health, and also how the same risks contribute to so many of the conditions and diseases that cause ill health and premature death. And we know these require action on contributory factors, such as physical activity. In addition, as the work of Professor Sir Michael Marmot and others have established,[29] the evidence shows that a good start to life is the key to lifelong health and wellbeing.

We will also focus on dementia as a leading public concern, recognising that a focus on these same risk factors will help reduce people's risk of dementia and delay its onset.

We will continue to prioritise protecting the public from infectious disease, maintaining our capacity and capability to prevent and control outbreaks effectively. In particular, we want to see progress in tackling tuberculosis and reducing the threat from antimicrobial resistance.

We will pursue each of these, recognising three underpinning themes:

- that we are concerned with population health and also with the impact on individuals, and that mental and physical health are equally important to our wellbeing
- that we must act in a way that reduces health inequality and ensures everyone is able to benefit
- that we recognise the importance of place and the strength of building on all of a community's assets

The seven priorities are not our only areas of interest, nor do they represent the full range of contributions that we make to protecting and improving the public's health. They are, however, the areas we identify as most in need of improvement in the next 5 years and where we will relentlessly focus our efforts.

PHE will focus on securing improvements against seven priorities:

- **tackling obesity** particularly among children
- **reducing smoking** and stopping children starting
- reducing **harmful drinking** and alcohol-related hospital admissions
- ensuring **every child** has the **best start** in life
- **reducing the risk of dementia**, its incidence and prevalence in 65-75 year olds
- tackling the growth in **antimicrobial resistance**
- achieving a year-on-year decline in **tuberculosis** incidence

We cannot do this alone. PHE will work with local and central government, clinical commissioning groups and the wider NHS, universities, industry, employers, and the voluntary and community sector to build support and commitment for improving health, making evidence and knowledge on 'what works' available to all in a form they can use and spreading best practice. Above all, we need an active partnership with people so they take greater charge of improving their own health.

1 Tackling obesity

Outcome:

An increase in the proportion of children leaving primary school with a healthy weight, accompanied by a reduction in levels of excess weight in adults.

Why focus on obesity?

Being overweight is associated with increases in the risk of cardiovascular disease, diabetes and some cancers.[31] It is also associated with poor mental health in adults, and stigma and bullying in childhood.[32]

We know that poor diet has a direct impact on health: an estimated 70,000 premature deaths in the UK could be avoided each year if UK diets matched nutritional guidelines.[33] We also know that one in two women and one in three men are insufficiently active for good health.[34]

There are stark inequalities in levels of child obesity, with prevalence among children in the most deprived areas being double that of those children in the least deprived areas.[35] If an individual is poor, he or she is more likely to be affected by obesity and its health and wellbeing consequences.

Where are we now?

Being obese or overweight is becoming the social norm: the number of children who are obese doubles from reception to year six,[36] while among adults 67% of men and 57% of women are obese or overweight.[37]

Figure 11 Prevalence of excess weight among children.

Over the next 18 months, PHE will:

- work with NHS England to implement the commitments to tackling obesity set out in the NHS Five Year Forward View
- produce an independent report for government on sugar and diet, including evidence reviews on fiscal measures and promotions and advice from the Scientific Advisory Committee on Nutrition
- publish the evidence-based Everybody Active, Every Day framework[30] and refresh the eatwell plate and 5 a day approaches
- run the New Year healthy eating campaign and summer physical activity campaign, and increase the number of families signed up to Change4Life by 500,000
- support local authorities to deliver whole system approaches to tackle obesity, including through supporting healthier and more sustainable food procurement

2 Reducing smoking

Outcome:

A reduction in the proportion of 15-year-olds who smoke.

Why focus on smoking?

Smoking is England's biggest killer, causing nearly 80,000 premature deaths a year and a heavy toll of illness.[39] Nearly eight million people still smoke,[40] with most having started in childhood.[41] There are stark inequalities – people in routine and manual jobs are more than twice as likely to smoke as those in managerial and professional roles;[42] teenagers are almost six times as likely to smoke throughout pregnancy as women who are over 35;[43] people living in Kingston upon Hull are almost twice as likely to die from smoking as those living in Kingston upon Thames;[44] and 33% of tobacco is consumed by people with mental health problems.[45] The best way to stop children smoking is to reduce smoking in the world around them, helping adults to quit so that smoking is no longer the norm. We want to secure a tobacco-free generation; our most disadvantaged communities have the most to gain from this.

Where are we now?

8% of 15-year-olds in England are regular smokers and a further 10% are occasional smokers.[46]

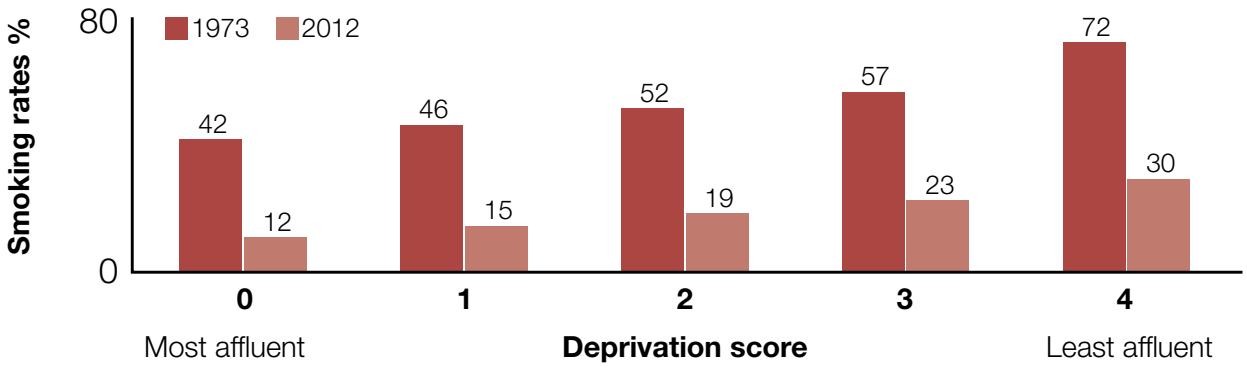


Figure 12 Smoking rates have declined much less rapidly among lower socioeconomic groups[47]

Over the next 18 months, PHE will:

- stimulate 500,000 quit attempts through smokefree campaigns, including Stoptober, a New Year health harms campaign, and combating smoking in cars
- produce an independent report for government on e-cigarettes
- continue to advise government on the evidence for the introduction of standardised packaging of tobacco products
- work with government, local authorities, the NHS, and the voluntary and community sector to develop tools to support effective commissioning
- provide seminars across England to support local partners in addressing smoking and mental health, smoking in pregnancy and making the case for comprehensive local tobacco control
- work with the National Offender Management Service, NHS England and mental health charities to reduce the prevalence of smoking within the prison population; and support NHS mental health services to become smoke-free

3 Reducing harmful drinking

Outcome:

A reduction in the number of hospital admissions due to alcohol.

Why focus on drinking?

Alcohol is the leading risk factor for preventable death in 15-49 year olds.[48] Nine million adults now drink at levels that increase the risk of harm,[49] of whom 1.6 million show signs of alcohol dependence.[50] From 2001-2012, the number of people who died due to liver disease in England rose from 7,841 to 10,948 – a 40% increase and in contrast to other major causes of disease that have been declining.[51]

The harm of alcohol falls not just on individuals but on society as a whole. Overall, alcohol harm costs society £21 billion a year, with the costs to the NHS at £3.5 billion.[52]

We see massive inequalities in where its impact is felt. People with mental illness are more likely to misuse alcohol;[53] and the most deprived fifth of the population of the country suffers two to three times greater loss of life attributable to alcohol.[54]

Where are we now?

In 2012/13, there were 326,000 hospital admissions where alcohol was the main reason for admission.[55]

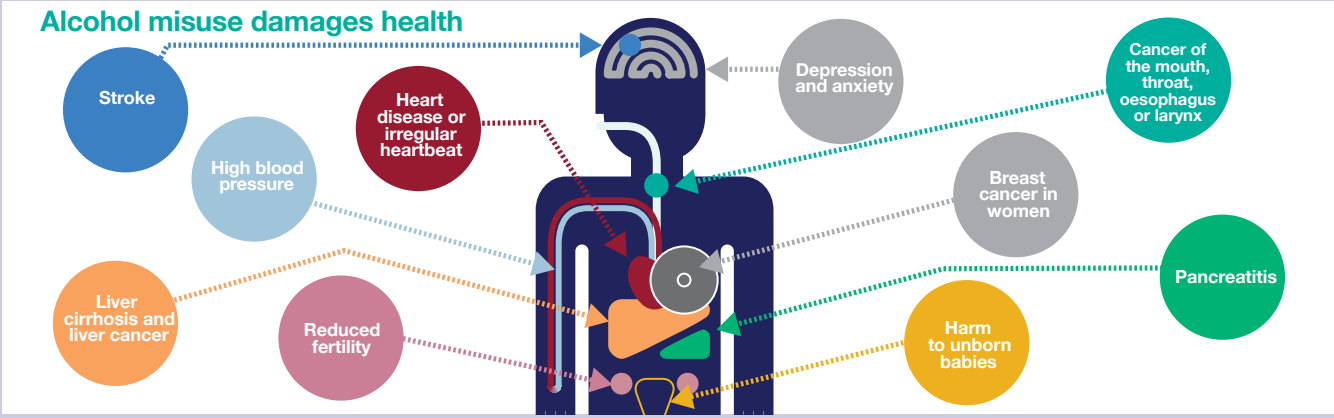


Figure 13 Infographic depicting alcohol misuse damages to health[56]

Over the next 18 months, PHE will:

- use alcohol as the trailblazer for a new whole system approach that establishes what works and is clear on the return on investment, enabling government, local authorities and the NHS to invest with confidence in evidence based policies, prevention and treatment interventions
- produce an independent report for government on the public health impacts of alcohol and on evidence-based solutions
- produce a framework on liver disease outlining public health actions to tackle liver disease, including alcohol
- expand the Longer Lives web tool to include indicators on alcohol treatment and recovery, and to identify variations in performance
- launch Liver Disease Profiles to support local authority health and wellbeing boards to understand liver disease and its risk factors in their area and, in turn, design effective local population level interventions
- continue to set out the evidence base for the introduction of a minimum unit price for alcohol
- consider the evidence for the inclusion of health as a licensing objective

4 Ensuring every child has the best start in life

Outcome:

An increase in the proportion of children 'ready to learn at two and ready for school at five'

Why focus on the best start in life?

Getting a good start in life, building emotional resilience and getting maximum benefit from education are the most important markers for good health and wellbeing throughout life.[57] We know that 80% of brain cell development takes place by age three[58] and how we care for infants shapes their lives. Early attachment and good maternal mental health shapes a child's later emotional, behavioural and intellectual development.[59] Enabling children to achieve their full potential and be physically and emotionally healthy provides the cornerstone for a healthy, productive adulthood.

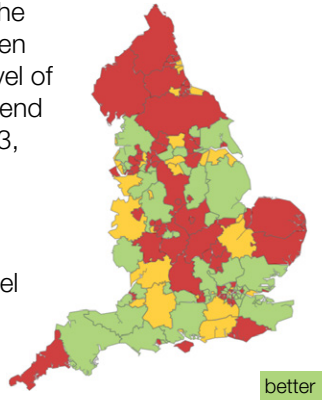
Socially disadvantaged children are more likely to have speech, language and communication difficulties than their peers, which has implications for their educational attainment and future life chances.[60] There is also evidence of difficulties with peer relationships, emotional problems and impaired social behaviour. For example, 60% of young offenders are found to have speech, language and communication needs.[61]

Where are we now?

In 2012/13, 52% of children reached a good level of development at the end of their reception year, with 36% of children eligible for free school meals reaching this level.[62]

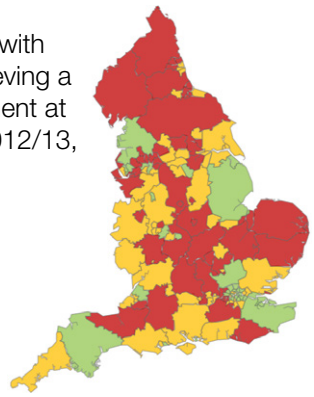
School readiness: The percentage of children achieving a good level of development at the end of reception 2012/13, England

51.7%
achieved a good level of development



School readiness: The percentage of children with free school meals achieving a good level of development at the end of reception 2012/13, England

36.2%
achieved a good level of development



better similar worse Compared to England

Figure 14 Inequalities in school readiness at the end of reception.[63]

Over the next 18 months, PHE will:

- support local authorities in developing integrated children and young people's services as they take on commissioning responsibilities for the Healthy Child Programme for 0-5s
- promote the importance of high-quality universal services as a foundation for good health for all our children and as a platform for early intervention and targeted support
- develop and strengthen the evidence, including working with the Early Intervention Foundation as a 'What Works Centre for Early Intervention'
- expand the Start4Life Information Service for Parents from 0-2 years to 0-5 years and sign up over 200,000 more parents
- expand newborn bloodspot screening to include four new inherited metabolic disorders
- work with NICE on the implementation of the quality standards and pathways for emotional and social wellbeing in early years
- lead and co-ordinate the Childhood Flu Programme, working with NHS England
- increase coverage of measles, mumps and rubella immunisations for all children at five years

5 Dementia risk reduction

Outcome:

Reduced prevalence and incidence of dementia among 65 to 74-year-olds.

Why focus on dementia?

It is estimated that more than 800,000 people in the UK have dementia, and this is projected to increase to over 1 million by 2021 and over 2 million by 2051.[64] Four-fifths of people over 50 fear that they will develop dementia.[65] As well as the huge personal cost, the overall economic impact of dementia in the UK is estimated to be £26 billion per year.[66]

In the absence of a treatment or cure, it is important that we take action to reduce the numbers of people getting dementia, postpone the onset of dementia and/or mitigate its impact. The ground-breaking Blackfriars Consensus,[67] published earlier this year, makes the case for concerted action to reduce people's risk of dementia by supporting them to live healthier lives and manage pre-existing conditions that increase their risk of dementia, such as depression or diabetes. Focusing particularly on avoiding or delaying the onset of dementia for people within ten years of retirement age will mean more people can enjoy a healthy and independent life for longer. Alongside a focus on dementia risk reduction, we also want to support people with dementia to live well to reduce its impact on individuals, their families and carers.

Where are we now?

There are currently estimated to be over 135,000 people aged 65 to 74 living with dementia in England.[68]

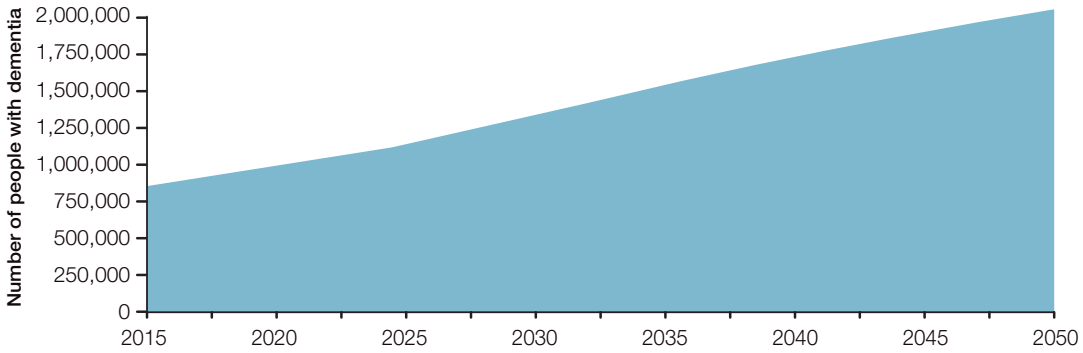


Figure 15 Projected increases in the number of people in the UK with dementia on current trends[69]

Over the next 18 months, PHE will:

- raise people's awareness and understanding and support them to take actions to reduce their risk of dementia by running a major new healthy living marketing campaign aimed at 40 to 60-year-olds, and by working with University College London Partners to develop a new personalised risk assessment calculator for incorporation into the NHS Health Check
- work with NHS England and other partners to build dementia risk reduction into care and support for predisposing conditions and raise awareness of inequalities in dementia, supporting people to receive a timely diagnosis and the care and support they need. This includes work with the Alzheimer's Society and the Depression Alliance on actions to prevent depression and incorporating dementia risk reduction as a key outcome in health improvement programmes, such as the NHS Health Check
- work with Health Education England, the royal colleges and others to increase professionals' understanding of dementia risk reduction
- work with academics and other partners to develop measures for modelling of dementia incidence and prevalence, while continuing to build the evidence base for dementia risk reduction

6 Tackling antimicrobial resistance

Outcome:

Reductions in the number of serious infections that are resistant to treatment.

Why focus on antimicrobial resistance?

Infections caused by resistant organisms are more difficult and more expensive to treat and often fail to respond to standard treatment, resulting in prolonged illness and greater risk of death. Across Europe, the European Centre for Disease Prevention and Control estimates that 25,000 people die each year as a result of hospital infections caused by five key resistant bacteria, adding – on a conservative estimate – €1.5 billion to hospital treatment and societal costs.[70] Many of the medical advances in recent years, such as organ transplantation and cancer chemotherapy, are dependent on the availability of antibiotics to prevent and treat associated bacterial infections. Inappropriate use and overuse of antimicrobials such as antibiotics is a major driver of antimicrobial resistance.[71]

Where are we now?

The number of antibiotics prescribed in England increased by 6% between 2010 to 2013. The number of bloodstream infections caused by resistant organisms has also increased over this period. For example, one in five bloodstream infections with *Escherichia coli* are now resistant to at least one key drug.[72]

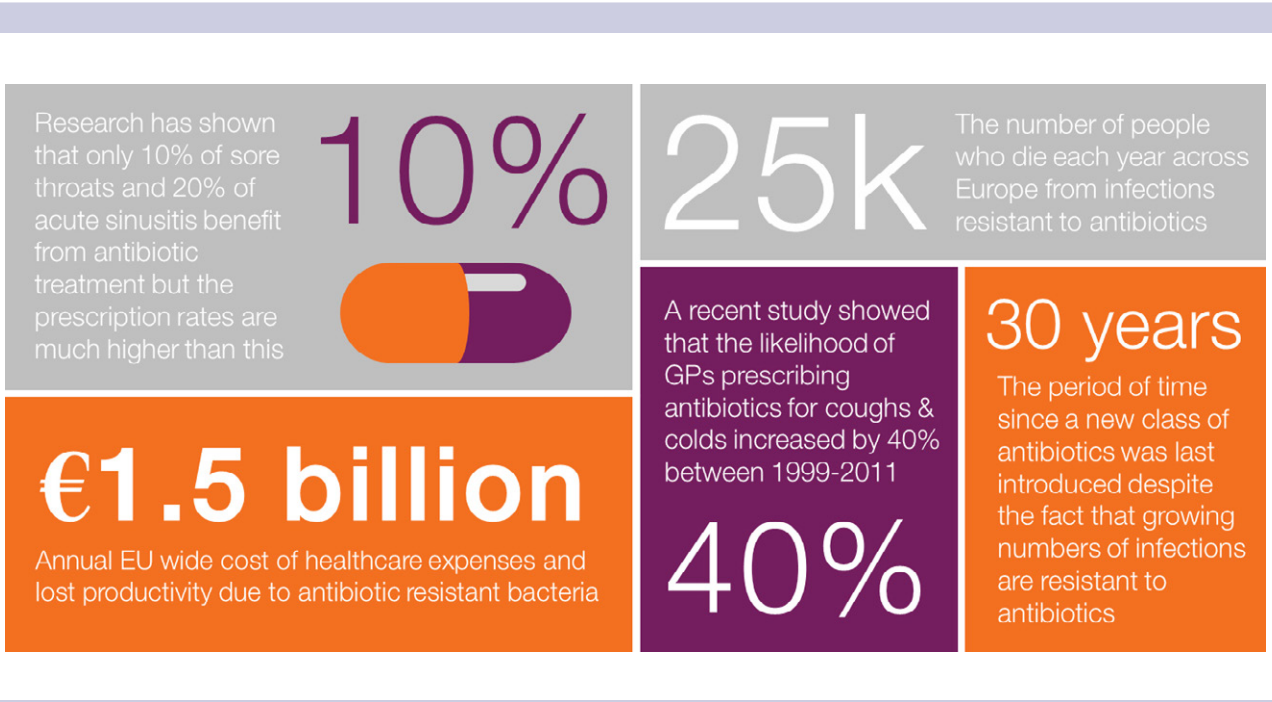


Figure 16 Antimicrobial resistance in numbers.[73]

Over the next 18 months, PHE will:

- develop a new national strategy for infection prevention and control across the health and care system
- implement improved surveillance and feedback systems for antibiotic prescribing and resistance to drive down inappropriate prescribing in primary and secondary care
- develop a 'One Health' report encompassing antibiotic resistance and consumption data across the human and animal sectors
- deliver a new data capture system for reporting of healthcare-associated infection

7 Reducing tuberculosis

Outcome:

A year-on-year decline in tuberculosis incidence.

Why focus on tuberculosis?

UK incidence is four times higher than in the US.[74] Tuberculosis also continues to disproportionately affect the most deprived communities, with 70% of all cases coming from the 40% most deprived communities.[75]

If current trends continue, England will have more tuberculosis cases than the whole of the US within two years.[76] London is widely cited as being the tuberculosis capital of Western Europe, with examples of outbreaks in other countries originating in the UK.[77] Other comparable countries have seen sustained declines in rates over the past decades, mainly due to improved control.[78] Failure to prevent, diagnose and adequately treat tuberculosis cases in the UK is also leading to the development of drug resistance, onward transmission and outbreaks, including outbreaks of multidrug resistant tuberculosis.[79]

Where are we now?

In 2013 there were 7,290 cases of tuberculosis reported in England, which is a rate of 13.5 cases per 100,000 population.[80] A total of 2,985 cases occurred in London alone, a rate of 35.5 cases per 100,000 population, nearly three times higher than the national average.[81] This is mirrored by rates in Leicester (53.1), Birmingham (38.0), Luton (41.3), Manchester (37.0) and Coventry (36.2), demonstrating that tuberculosis is predominantly concentrated in large urban areas (2011-2013 average rate).[82]

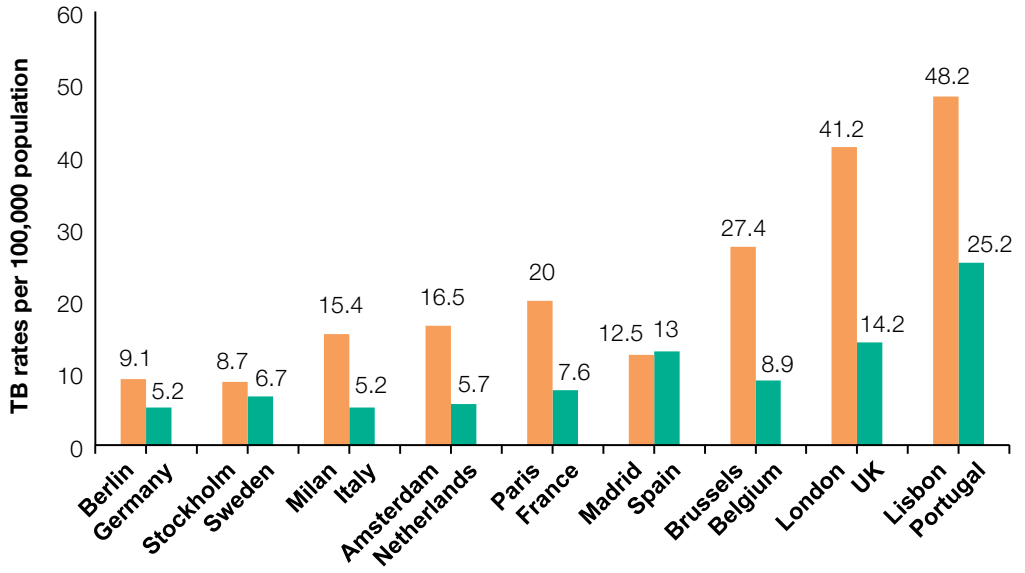


Figure 17 Comparison of tuberculosis rates per 100,000 population in Western European countries and cities (2012).[83]

Over the next 18 months, PHE will:

- publish a collaborative tuberculosis strategy, in partnership with NHS England
- work with local partners, including local authorities and NHS, to set up local TB control boards, focusing on areas of high incidence
- support NHS England to introduce active case finding in underserved populations and the systematic implementation of new entrant latent tuberculosis testing and treatment
- run a pilot programme of whole genome sequencing for TB

New drivers and opportunities

Our starting point for the priorities in this document is that we cannot maintain the status quo. A sustainable health and care service will be one that helps people to stay healthy, and not one that only treats illness.

In driving this agenda forward, the new public health system can take advantage of six 'game-changers' which, combined, offer a unique opportunity for positive change and much faster progress.

The first of these is the application of **behavioural science in the digital age**, which offers the opportunity to reach people we have not been able to reach before. Using digital and mobile technology, and the insights of behavioural science, we can provide personalised support on a mass scale.

Not only is 82% of the population online,[84] but today's smartphones and wearable technology, for example, are allowing us to measure our own heart rates or count how many steps we take every day.

PHE will develop new approaches to motivate and support people to make healthy changes in a way that resonates with them. We will partner with one or more universities to bring to bear in depth the insights of social and behavioural science in tackling our seven priorities. We will make greater use of competitions and other innovative approaches to encourage the best ideas in applying digital technology to promote behaviour change and improve health.

We will continue to support local authorities and the NHS in adopting digital tools, building on the Change4Life and Stoptober campaigns, which already engage hundreds of thousands of people each year and on innovation programmes such as our Health X competition for new health-related apps.

The second game-changer is the importance of **place-based approaches** under the leadership of local authorities, working with clinical commissioning groups and professional bodies including the Chartered Institute of Environmental Health, Faculty of Public Health and Royal Society for Public Health. At its heart, this means developing local solutions that draw on all the assets and resources of an area, integrating public services and also building resilience in communities so that they take control and rely less on external support.

PHE will support the work of local authorities on integrating health care and other local services and will work with national partners such as Citizens UK to build powerful national and local networks. We will also develop the evidence base on community development interventions.

The third game-changer is the opportunity to develop evidence-based **NHS preventative services** and implement them at scale. As the NHS Five Year Forward View sets out, a greater investment in prevention, integration and supporting health is necessary to sustain the NHS we all want to see, within the resources that are likely to be available.

PHE will develop a new preventative services programme with NHS England, which will assess the evidence, design the interventions and support the implementation of proven approaches to prevent disease. We will start with diabetes, where our ambition over the next five years is to be the first country to implement at scale a national evidence-based diabetes prevention programme.

The fourth game-changer is **transparency**, so that everyone can access information on performance or need, and the evidence on 'what works'. Meaningful data and information will allow communities and decision-makers to make better decisions about how to improve health, and will increase accountability.

PHE will publish the evidence and intelligence we hold in an engaging and relevant way, and ensure that our information products are easily accessible and useful. We will develop a much clearer focus on the economic case for prevention, being clear on the return on investment in the public's health, including the practicalities of how to implement and how to ensure the expected returns are realised and savings cashed. We will build on our initial products in this area, for example the local authority Spend and Outcome Tool (SPOT) and the return on investment tools developed by NICE.[85]

We will establish a partnership with the Chartered Institute of Public Finance and Accountancy and local authorities to focus on the cost effectiveness of, and return on investment from, public health interventions. Our joint work will provide reliable data on patterns and trends in spend by public bodies on services and infrastructure that are relevant to the determinants of health. We will then relate these patterns of spend to (a) patterns of health need and outcome locally and (b) the existing evidence base on cost-effectiveness in order to help local authorities and clinical commissioning groups make decisions on future spending priorities. We will also expand our work on the atlases of variation to establish a new National Variation and Value Service providing the definitive analysis of population level variations in the supply of care.

In all of this, we will develop robust, practical and relevant approaches that we know local authorities and the NHS are looking for. For example, the Well North programme[86] we are developing with Manchester University and local authority and academic partners across the North will build on hotspot analysis to identify communities that use lots of hospital services and propose targeted preventative interventions to both improve health and reduce the reliance on hospital-based services.

The fifth game-changer is the powerful contribution of **employers** to improving people's mental and physical health. The link between health and work is increasingly well understood: good quality work promotes better health, and a healthier workforce is a more productive one. As the Chief Medical Officer's annual report for 2013 sets out, successful strategies have been developed for helping people with mental health conditions return to work.

This year, we have launched a national set of standards on workplace health – the Workplace Wellbeing Charter – which provides

a ‘roadmap’ for businesses wanting to improve the health and wellbeing of their staff.

The sixth game-changer is to redefine our approach to improving health through the application of the concept of **wellness**. Historically, we have only measured illness and healthcare activity. Neither adequately captures our experience of health. We are keen to see wider measures of wellness adopted to give a much broader, person-centred view of health and the application of this concept systematically across the health and care system.

We need to establish clearer terminology, develop reliable measures and be able to more effectively develop, collect, share and use the evidence of what works to improve wellness and wellbeing. We are helping to establish a world first – a ‘What Works Centre for Wellbeing’ – to do just that.

Taken together, we believe these game-changers present a real opportunity to improve the public’s health and deliver on the priorities we have chosen. We will align our resources behind these, working across the whole public health system: local and central government, the NHS and clinical commissioning groups, universities, professional bodies, industry, employers, the voluntary and community sector and the public themselves to deliver tangible improvements. Our focus will be on what works and turning evidence into action.

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