

Briefing: Improving the nation's health

The future of the public health system in England

Tim Elwell-Sutton, David Finch, Deborah Jenkins, Rita Ranmal, Louise Marshall, Olivia McNeill, Adam Briggs, Genevieve Cameron and Mimi Malhotra

Key points

- The UK government has committed to improving the nation's health. It has set itself a 'grand challenge' of enabling people to live an extra 5 years of healthy life by 2035 while narrowing the gap between the richest and poorest. Bolder action is needed to make progress towards this goal.
- The pandemic has shown that good health is necessary for a flourishing society. Effective recovery will require the government to prioritise creating the right conditions for people to lead healthy lives, using the full range of levers at its disposal.
- Following the government's decision to abolish Public Health England (PHE), the government needs to create a public health system fit to meet the challenges ahead.
- The new system needs the right strategy, structures and resources:
 - The strategy for creating an effective new public health system should include a cross-government commitment to 'level up' health outcomes and enable people to live longer in good health.
 - The structures needed include an independent body to report to parliament on the nation's health, a national function supporting the public health system, and strengthened local and regional infrastructure.
 - The resources needed include, as a minimum, £1.2bn to restore public health funding to its 2015 levels and a further £2.6bn needed to level up public health across the country. Government should also commit to ensuring that public health funding keeps pace with NHS funding increases in future.
- The transition to a new public health system needs to be managed carefully, to ensure that the reorganisation does not disrupt the pandemic response or lead to a weaker system in future.

Introduction

The UK government has committed to improving the nation's health, including the 'grand challenge' of ensuring people are able to live an extra 5 years of healthy life by 2035 while 'narrowing the gap between the experience of the richest and poorest'.¹ Improving health should also be an important part of the government's commitment to 'level up' the poorest parts of the country.

These are huge challenges, particularly at a time when the nation's health and economy are being buffeted by coronavirus (COVID-19). In light of the impact of the pandemic and the government's decision to abolish Public Health England (PHE), this briefing explores what needs to be put in place to make progress on the government's commitments to improve the nation's health. We begin by looking at the role government can play in improving the nation's health before examining how England might transition to a new public health system and what the main priorities for any new system should be.

The COVID-19 pandemic has seen government take radical action to protect health. The state has intervened in the economy and in people's social lives in ways previously unknown in peacetime. The cost of the UK government's pandemic response is estimated at £278bn in 2020/21,² three times the amount it spends on education each year for the whole of the UK.³

Meeting the commitments government has made to improve health would need a similar level of ambition. Beyond the pandemic response, there is huge scope to improve people's health, and this would bring great economic and social benefits with it. In 2018, about 22% of all deaths in the UK were avoidable and of these, an estimated 64% could have been prevented through effective public health and primary prevention interventions.⁴ New Health Foundation analysis shows that if everyone in the country enjoyed the same health as those in the most affluent half of areas, 77,000 premature deaths (among those younger than age 75) could have been averted in 2018 – and this figure is bound to be higher during the pandemic.⁵

Realising these potential gains needs action across the whole of government. It requires investment in creating the conditions that allow people to lead healthy lives and the right public health infrastructure to improve health.

In August 2020, the government announced that it is going to abolish Public Health England. At the time, clear plans were in place for PHE's pandemic response functions to continue as part of a new National Institute for Health Protection. A wide range of PHE functions that improve the nation's health, however, still have an uncertain future. This has opened up debate about how England's public health system should be organised and the extent to which responsibility to improve health should sit at national, regional or local levels.

It is vital that what emerges from this debate is a public health system able to deliver on government commitments to improve health and level up poorer parts of the country. There is a risk that the immediate need to control the pandemic could lead to a deprioritisation of the very policies, systems and investment needed to keep people in good health. This briefing considers the challenges that lie ahead, and presents proposals for a new public health system.

The role of government in improving the public's health

Why should governments play a role?

There is a long history of the state intervening to improve the public's health from the Victorian sanitation movement, to vaccination programmes and tobacco control. There was a progressive increase in life expectancy over the 20th century.⁶ However, the dramatic slowing of improvements to life expectancy⁷ and growing inequalities in people's health outcomes⁸ over the past 10 years – combined with the immediate risks of the COVID-19 pandemic and a major restructuring of England's public health infrastructure – make this an important moment to consider the most effective and appropriate ways for government to protect and improve health.

The health of its population is one of any nation's greatest assets. Good health improves people's wellbeing, productivity and their ability to participate in society.^{9,10} The inextricable link between good health and a prosperous, flourishing society has never been more apparent than during the emergence of the COVID-19 pandemic, when a health emergency very quickly expanded to become an economic and social crisis. Managing the impact of the virus has been made all the more difficult by previous failures to address long-term health issues and entrenched inequalities in health that have left some communities much more vulnerable to the effects of COVID-19 than others.¹¹ The value of good health to the nation in providing resilience and enabling a functioning society, is therefore an important reason for governments to prioritise keeping people healthy.

The need for 'health in all policies'

The conditions in which people live are some of the strongest drivers of health outcomes.¹² The environmental, social, commercial and economic circumstances people experience (the wider determinants of health) affect health both directly and through complex causal mechanisms. Air pollution or damp housing, for example, directly damage respiratory health. Poverty can damage health through more complex mechanisms including physiological stress pathways and limiting access to health-enhancing goods and services.¹³ There is also evidence that people's circumstances constrain and influence health-related behaviour such as smoking, exercise and diet.¹³ Many of the major health challenges of our time, therefore, can only be addressed effectively by taking action on the wider determinants of health.

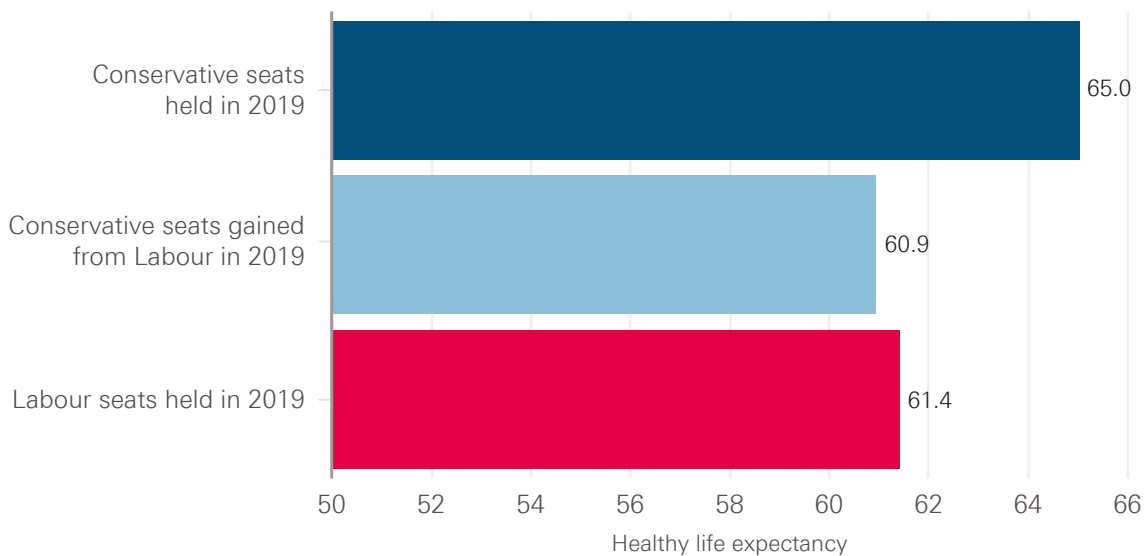
Some of the strongest drivers of health and health inequalities involve areas where government already plays an important role. This includes: social security, housing, education, transport and access to green space.¹² Policy and investment right across central and local government affects health, whether or not health outcomes are explicitly taken into account. A ‘health in all policies’ approach acknowledges this and ensures that improving health is explicitly prioritised in all policy development.¹⁴ Much of what government does cannot be considered to be ‘neutral’ in terms of its effect on people’s health and it is more likely to be beneficial to health if health outcomes are considered from the start.

Public expectations and support for government involvement

For the current government, there is also a political imperative to take action on improving the population’s health. The strong two-way relationship between a population’s health and a prosperous society, suggests the government’s ambition to level up more socioeconomically deprived parts of the country must include actions designed to improve health.

Figure 1 shows that in the constituencies the Conservative Party gained from Labour to give them their majority at the 2019 general election, female healthy life expectancy is much lower than in traditional Conservative seats by around 4 years. Other analysis by the Health Foundation has found these areas have worse outcomes for child obesity and potentially more negative food environments (eg a high density of unhealthy food outlets).¹⁵

Figure 1: Female healthy life expectancy by the constituency local authority area, 2016–2018



Source: Health Foundation analysis using ONS, Health State Life Expectancies by local area 2016–18, House of Commons, General Election results.

Putting health at the heart of the levelling up agenda also fits with public expectations. In one recent poll commissioned by the Health Foundation, when asked what was important in addressing regional inequalities, the most common answers were economic issues (62% said these were ‘very important’) followed by health outcomes, with 56% of people saying these were ‘very important’.¹⁶

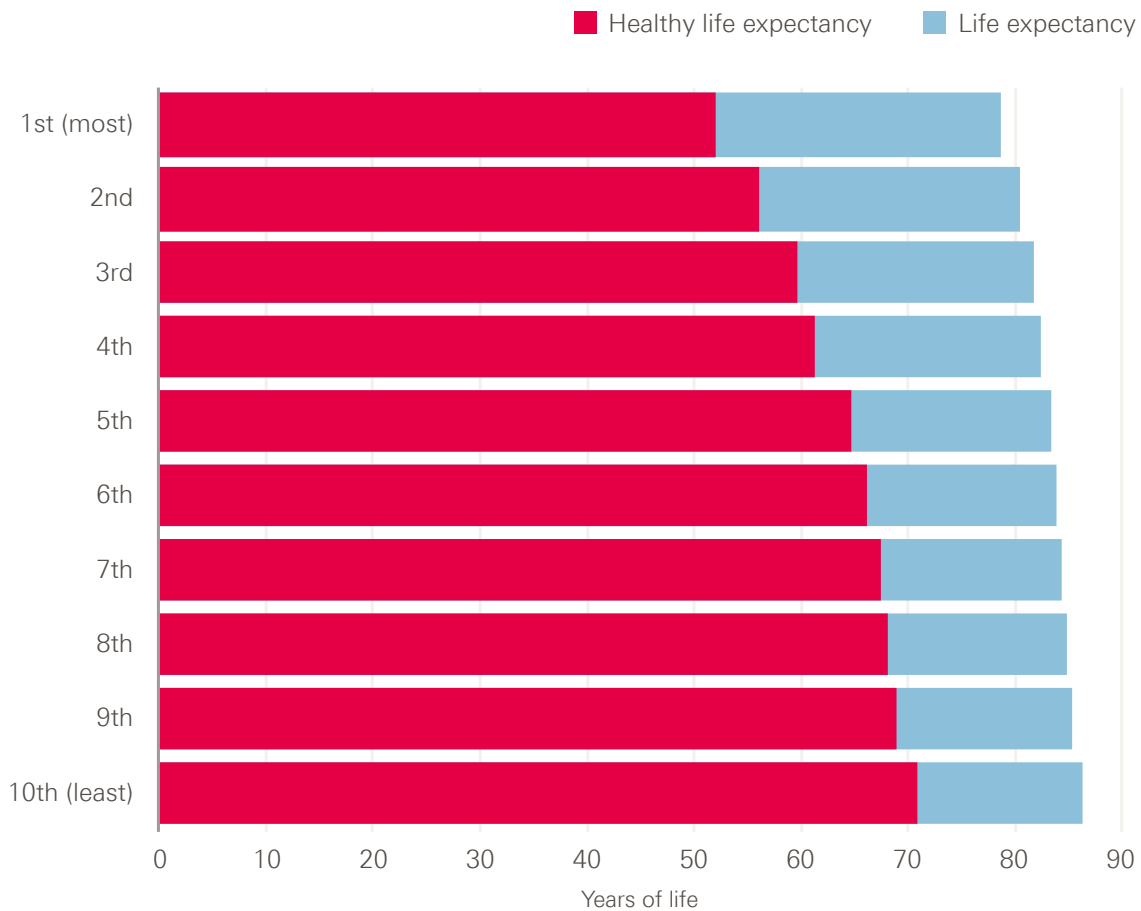
More generally, government involvement in keeping people healthy has a large measure of public support, which has grown during the pandemic. A UK-wide survey, commissioned by the Health Foundation and conducted by Ipsos MORI in May 2020, asked people their views on whether government has a responsibility for people’s health: 86% believed that national government has ‘a great deal’ or ‘fair amount’ of responsibility for ensuring that people generally stay healthy. This was an increase from 61% of those surveyed in 2018.¹⁷

The economic reasons to invest in keeping people healthy

Evidence suggests that around 40% of health care provision in the UK is used to treat preventable conditions.¹⁸ Public health interventions that aim to prevent disease occurring are generally highly cost effective and in many cases actually cost-saving showing an average (median) return on investment (ROI) of 14.¹⁹ This means that society benefits an average of 14 times the initial investment into each intervention. Making direct comparisons is difficult but overall, preventative public health interventions appear to be far more cost effective than health care. For example, the threshold used by the National Institute of Health and Care Excellence (NICE) to assess whether a new health care intervention should be funded is equivalent to an ROI of around 3.2.¹⁸ Clearly, then, there is a strong economic rationale for government to invest in keeping people healthy, as a way of improving health in addition to treating those who become unwell.

Moreover, a workforce that remains fit, healthy and working for longer can both increase tax revenues and decrease the costs of supporting an ageing society that is in poor health. However, health inequalities undermine these benefits. Figure 2 also shows that those in more deprived areas not only die younger but are likely to spend a much larger proportion of their lives in poor health, with huge economic as well as human costs.

Figure 2: Female life expectancy and healthy life expectancy at birth, 2015–2017



Source: ONS, Health State Life Expectancies by decile of deprivation, England: 2016–18

A programme of research funded by the Health Foundation to examine the impact that health can have on economic outcomes has found evidence that poor health leads to worse socioeconomic outcomes including reduced earnings and deprivation.²⁰ For example, declining health over time significantly increases the probability of presenteeism (reduced productivity at work due to health problems) and these effects seem to be stronger for mental health problems than physical health.²¹ More immediately, the impact that the COVID-19 pandemic is having on the global economy is a stark reminder of the inextricable link between a healthy population and a thriving economy.

How can government intervene to improve health?

Government has a variety of effective ways to improve health by creating the right conditions for people to lead healthy lives. One way of categorising the levers available is to consider government intervention in health as correcting market failures. Economists use the term ‘market failure’ to describe a situation in which market forces lead to a reduction in societal welfare. Market failures can be profoundly damaging to health and the need to correct such failures is a powerful reason for government to be involved in improving health.

The following are some of the main ways in which governments can improve health by addressing market failures:

- **Taxation** is well known to influence the behaviour of companies and individuals through their effect on the prices of certain goods and services. They can be used to reduce the quantity of a product consumed (eg taxes on tobacco products) or on the nature of products (eg the Soft Drinks Industry Levy, which led to reduced sugar content in drinks²²). Taxes also play an important redistributive role, allowing government to provide a social safety net.
- **Regulation** can be used to control the supply or quality of certain goods, services or activities. This has been highly effective at improving health in areas such as the ban on smoking in public places, mandatory wearing of seatbelts, employment and workplace safety standards, and the licensing of gambling and alcohol sales. Polling data suggests that health-focused regulation of industries such as food, alcohol and tobacco has a high level of public support.^{23,24}
- **Spending** in two main forms:
 - Direct transfers – to individuals (eg through social security payments) or to firms (eg subsidies). This form of spending is vital for ensuring individuals and families on low incomes can maintain good health.
 - Providing services – the preventative and curative services provided by the NHS are the most obvious health-related services provided by government in the UK. However, a huge range of public services are relevant to improving the nation's health from universal education to public health services such as vaccination, drug and alcohol treatment, and school nursing.
- **Information** can help people, businesses and other institutions to make more informed decisions about the activities they engage in, or the goods they consume. Two main forms are relevant here:
 - Robust data and analysis have been at the heart of public health since the early days of the discipline when John Snow used epidemiological analysis to help stop the spread of cholera.²⁵ They are equally important today in addressing major health issues from COVID-19 to obesity.
 - Providing individuals with information can change their behaviour in certain circumstances though providing information alone is rarely enough to make significant improvements to people's health.

Different governments will make different decisions about which of these levers to favour at any given time. Where large improvements have been made in the country's health, these are largely found to result from a combination of these strategies. Most notably the reductions in smoking over the past 40 years have been a combination of taxation on tobacco, increased prevention services, greater public understanding of the risks and increased regulation of marketing, sales and consumption.

In addition to direct action by government, it also needs to work closely with the private and voluntary sectors to create the right conditions for healthy lives. Recovery from COVID-19 will require organised efforts across society to rebuild health, the economy and society. This means central and local government working closely with the private and non-profit sectors in the recovery phase. The UK's Industrial Strategy is an important vehicle for this kind of cross-sector collaboration and should be seen as a means for achieving the government's health improvement ambitions. Indeed, the grand challenge to enable people to live an extra 5 years of healthy life by 2035 is part of the Industrial Strategy. The Health Foundation has advocated inclusive forms of economic development that are most likely to enhance health and reduce inequality.²⁶ This approach will be particularly important in the wake of the pandemic.

What are the roles of national, regional and local public health bodies now and in future?

While all areas of government have a part to play in creating the right conditions for people to lead healthy lives, it is vital for the nation's health that there is an effective public health system in place.

The current system

England's core public health system includes a national agency (PHE), several regional PHE teams, and local authority teams working under 134 Directors of Public Health.²⁷

Table 1: The public health system in England (excluding COVID-19 response functions)

Level	Key responsibilities
PHE national teams	<p><i>Health protection:</i> outbreak prevention and control, emergency planning, advise NHS England and the Department of Health and Social Care on screening and immunisation strategy.</p> <p><i>Health improvement:</i> strategic assessment of health and wellbeing needs; develop evidence and evaluate programmes.</p> <p><i>Health services:</i> advise on effective and cost-effective health services commissioning and prioritisation.</p> <p><i>Public health intelligence:</i> national data collection, analysis and dissemination.</p> <p><i>Workforce development:</i> supporting training and revalidation of public health professionals.</p>
PHE regions and centres (three regions and eight centres + London integrated region and centre)	<p>Support to local authorities on health protection, health improvement and health services.</p> <p>Translation of national guidance and policy into local context.</p> <p>Regional networking and joint action between local authorities.</p> <p>Support and advise on NHS England’s delivery of screening and immunisations.</p>
Local authority public health teams (134 teams in upper tier local authorities led by Directors of Public Health)	<p>The Director of Public Health is an independent advocate for the health of the population.</p> <p><i>Health protection:</i> local emergency planning; working with PHE to control local disease outbreaks.</p> <p><i>Health services:</i> commissioning and managing a range of services including sexual health, drug and alcohol treatment, and children’s (0–19 years) services. Also, delivering a ‘core offer’ of advice and analysis to local NHS commissioners supporting effective and cost-effective commissioning.</p> <p><i>Health improvement:</i> health promotion, social marketing and behavioural insights, community development; partnership working.</p> <p><i>Public health intelligence:</i> analysis of local population health needs in the Joint Strategic Needs Assessment.</p> <p><i>Wider determinants of health:</i> implementing a health in all policies approach across other areas of local authority responsibility such as housing, education, and social care.</p>

Sources: Faculty of Public Health, *Functions and standards of a Public Health System*. 2020; PHE Remit Letter 2019 to 2020; PHE website – About us.

Changes to the system

The government's decision to abolish PHE became public on 15 August 2020. Taking this decision in the middle of the pandemic is seen as highly risky by many commentators.²⁸ PHE's health protection functions will move into the new National Institute for Health Protection, but the dissolution of PHE has implications for the whole of England's public health system. While there are huge challenges associated with making the transition to a new system at this time, there are also opportunities to strengthen previously weak elements of the system.

In designing England's future public health infrastructure, it is helpful to consider lessons from how other countries organise their public health systems and also from previous iterations of the system in England.

Learning from national public health agencies in other countries

Most high-income countries have a national flagship agency with responsibility for public health* and most also have regional and local agencies with public health responsibilities. One key lesson drawn by the WHO's European Observatory on Health Systems and Policies, from comparisons made across European countries, is that there are benefits and drawbacks to decentralised models of public health.²⁹ While decentralisation can lead to geographical variation and the misalignment of policies, these models may be more effective at achieving change locally, and more responsive to local population health needs. It is clear, however, that even decentralised models require strong support from the centre, in the form of information systems, evidence-based guidelines, accountability mechanisms and a defined minimum level of services and local expenditure on public health.

Making comparisons between the responsibilities of flagship national public health agencies is easier than comparing public health systems as a whole. In some countries the primary focus of the national agency is on infectious disease prevention and response, such as Germany's Robert Koch Institute or South Korea's Disease Control and Prevention Agency. This is also true for many countries of eastern and southern Europe.

In others, however, national public health agencies in high-income countries have a dual mission to protect and improve health. This is true for the Public Health Agency of Canada, the US's Centers for Disease Control and Prevention, the Norwegian Institute of Public Health, and Public Health Scotland.

Some agencies also have an explicit focus on reducing inequalities in health outcomes. The Public Health Agency of Canada, for example, states that it is committed to reducing health disparities between the most advantaged and disadvantaged Canadians.

* Examples include the Centers for Disease Control (CDC) in the United States, the Robert Koch Institute in Germany, the Public Health Agency of Canada, and South Korea's Disease Control and Prevention Agency. Within the UK there is Public Health Wales, the recently-formed Public Health Scotland and the Public Health Agency of Northern Ireland.

Other common roles for national public health agencies include:²⁹

- **Research and knowledge production:** this can range from basic science research (eg at the Robert Koch Institute) to the production of systematic reviews and guidance (eg Norwegian Institute of Public Health).
- **National and international coordination:** the Norwegian Institute of Public Health acts as national coordinator in several fields, cooperating with universities, hospitals and research institutes.
- **Monitoring and reporting on the health of the nation:** Germany's Robert Koch Institute is responsible for nationwide health monitoring across communicable and non-communicable diseases in its health status reporting.
- **Providing public health leadership, advice and support from the centre:** Public Health Scotland and the Public Health Agency of Canada both have remits of this kind.
- **Workforce development:** The US's Centers for Disease Control and Prevention, describes one of its roles as 'nurturing public health' to have 'well-resourced public health leaders and capabilities at national, state and local levels.'

Box 1: History of reforms to England's public health infrastructure

Through the 20th century, national public health priorities shifted to reflect the changing burden of disease, from a focus on managing infectious diseases and improving sanitation, to the prevention of non-communicable diseases.

When the NHS was founded in 1948, public health services (including vaccination, ambulances, maternity and environmental health) remained under the control of local government health departments, led by an independent Medical Officer for Health. However, there were concerns that by being left out of the NHS, public health would remain reliant on scarcer local government funding rather than the centrally resourced NHS.

The 1973 NHS Reorganisation Act saw the role of Medical Officer for Health in local authorities abolished, and all but the environmental health functions of public health moved into the NHS. Despite having been more stable within the NHS between 1974 and 2013, health inequalities continued to rise and there was a lack of independent advocacy for local population health in the system.

The 1998 Acheson report recommended the return of the local government Medical Officer for Health under the rebranded Director of Public Health – a recommendation made again in the 2004 Wanless report. Through the 1990s and early 2000s, a range of different national organisations and arm's-length bodies were created by the Department of Health, with specific roles in public health, including the Health Protection Agency founded in 2003.

The creation of PHE following the 2012 Health and Social Care Act brought over 70 existing health bodies into a single organisation. This meant that public health functions in England could be better coordinated and planned. But as an executive agency of the Department of Health, PHE lacked true independence from government. At the same time, the majority of public health functions were moved out of the NHS and back into local government under Directors of Public Health, who once again provided independent advocacy for population health.

How to transition to a new system

The abolition of PHE has implications for the whole of England's public health system. Detailed proposals for the shape of a new public health system are set out in the final section, but it is also vital that the transition process is managed effectively. Any government plan for a new system should include strategies to manage the risks and maximise the opportunities of transition.

In the short term there are a number of risks that need to be mitigated. These include:

- **Loss of talent:** given uncertainty, there is a high risk that talented staff will leave PHE in the period between the announcement it will close (in August 2020) and the creation of new arrangements, expected in spring 2021. This could lead to new agencies not having sufficient skills and the loss of invaluable institutional memory. At a time when the whole public health system is under exceptional strain due to the pandemic, these are losses that cannot be afforded.
- **Loss of focus and productivity:** lessons from previous reorganisations (see Box 2) suggest that organisational change is highly costly in terms of staff time and focus. The reorganisation cannot be allowed to disrupt ongoing services including the pandemic response.
- **Financial costs:** while reorganisations are often intended to save money, transitions can be extremely costly, especially when existing staff are made redundant in one part of the system, only to be re-employed in another.
- **Disruption to data and analytics:** data analysis and sharing is the lifeblood of any public health system. The ability to gather, analyse and share data effectively has been significantly impaired by previous reorganisations (see Box 2). Difficulties with data sharing between national and local levels of the NHS Test and Trace system have also had a major impact on the ability of local authorities to manage outbreaks during the pandemic.³⁰ Getting this right must be a top priority for managing the transition.
- **Some functions could fall through the gaps:** a very wide range of functions are currently carried out by PHE. These include some that are less well known to the public and to policymakers including: dental public health, mental public health, prison health and professional revalidation for public health specialists. In the pressure to set up a new system quickly, while simultaneously managing the pandemic, there is a risk that some of these functions will either be lost or set up ineffectively. Taking the time to consult with a wide range of stakeholders will be an important part of mitigating this risk.
- **Skewing the balance between national, regional and local functions:** because the immediate catalyst for reforming the system is the closure of PHE, there is a risk that policymakers' attention is overly focused on national agencies. The removal of PHE, however, has huge implications for local and regional public health structures. It provides an opportunity to reconsider which functions are best carried out at each level – and how national, regional and local bodies can work together most effectively.

Box 2: Lessons from the reorganisation of cancer services

Lessons from reforms of cancer care suggest that the cultural, organisational and operational disruption brought about by reorganisation should not be underestimated. Health Foundation research into cancer care in England between 1995 and 2015 analysed national data and drew on insight from more than 70 senior clinicians, managers and charity leaders.³¹

A consistent theme in this work was the confusion caused by changes following the 2012 Health and Social Care Act. Interviewees involved in the planning and delivery of screening, treatment and care reported a period of disruption, primarily because reorganisation led to an exodus of experienced people, a lack of clarity over accountabilities and responsibilities, and fragmentation of parts of the system that had previously sat together.

There were also difficulties related to changes in where cancer data were held. As part of the reorganisation, PHE was given oversight of screening and cancer registries. Over time, PHE did make improvements to cancer data, which were acknowledged by many of the interviewees but there were major short-term disruptions.

'It all, kind of, fell to pieces... everything stopped for quite some time... [There were] massive fights in Public Health England about what data went where, who was in charge of it... [There was] huge knowledge in the system that just got dissolved.'
(Professor of Health Services Research)

Analysis shows that reorganisation tends to be highly costly, not least in terms of the labour involved. It has been noted, for example, that the reorganisation brought about by the 2012 Act is unlikely to have saved the £1–1.5bn a year intended.³² One estimate was that setting up new Clinical Commissioning Groups cost £299m, and redundancy payments were estimated at £858m.³³

While the short-term risks related to reorganising the system could have an immediate impact on the pandemic response, it is equally important to consider the long-term risks related to reorganisation since decisions made now are likely to affect the shape of the system for many years to come. These long-term risks include:

- **Loss of resources:** with national attention focused on health protection and huge resources being poured into the pandemic response (eg £22bn for NHS Test and Trace), there is a high risk that other parts of the system could become underresourced. The system has already had major funding cuts over the past 5 years (see the final section). Further deterioration of the funding position would weaken the system, reduce its resilience to future shocks, and damage health.
- **Inappropriate fragmentation of the system:** splitting PHE's existing functions into many different organisations could lead to a loss of synergies between different aspects of public health work. Keeping close connections between health protection and improving public health will be particularly important once the National Institute for Health Protection is established.

How to transition to a new system with minimum disruption

As the government puts a new public health system in place, three key principles should be considered to help avoid disruption and mitigate the risks we have outlined.

1. **Strengthen the functions that improve health.** The rationale for moving PHE's health protection functions into a new National Institute for Health Protection is to allow a more specialist body to focus on the control of infectious diseases. It should not be used as cover to downgrade other aspects of the national public health system. As PHE carries out a very wide range of functions, it is important that existing work does not fall through the gaps by accident or due to lack of adequate consultation. This is a critical time for the nation's health. Now is the time to strengthen the public health system at all levels rather than allowing it to be further degraded.
2. **Retain and recruit the right talent and expertise.** Losing talent at this time could have a major impact on the public's health. Many of the existing PHE functions rely on it having a high level of rigour and scientific expertise. It is important that the new system has sufficient public health expertise to produce high-quality, authoritative evidence, research and guidance. It is also important that subject-matter experts are represented at the most senior levels in key public health organisations.
3. **Make cooperation a duty.** Close working between the national, regional and local levels of the system is vital. Any new national bodies created or existing bodies that are reformed must also be given a duty to cooperate with other parts of the system including: local authority public health, the NHS, city regions and other regional bodies.

Proposals for a new public health system: the main priorities

What do we need for a strong public health system in the future? The unprecedented challenges posed by COVID-19, along with the government's decision to close PHE, mean that critical decisions need to be made about the future shape of England's public health system. The dissolution of PHE provides an opportunity not only to reshape the functions that it carried out, but also to strengthen previously weak areas of the system.

Based on our analysis of public health systems in other countries, analysis of previous reforms in England and recent consultations with a range of stakeholders,* this section sets out the main priorities for government to put in place as part of the future public health system.

* The 18 stakeholders consulted by email or in conversation were: five Directors of Public Health and two Acting Consultants in Public Health from local authorities across England; a Regional Director of Public Health; an Acting Consultant in Public Health from PHE; a public health academic; and representatives from the Royal Society of Public Health, the Association of Directors of Public Health, the Faculty of Public Health, the Local Government Association, the UK Public Health Network, the Centre for Mental Health and Mind.

An effective future system will require the right strategy, structures, and resources:

- Strategy: a cross-government approach is needed to level up health outcomes and enable people to live longer in good health. This will provide the overarching context for a well-functioning public health system.
- Structures – three things are needed:
 - an independent body to report on the nation’s health to parliament
 - a strong national agency to take on the bulk of PHE’s work to improve health
 - strengthening of regional and local public health bodies.
- Resources: to make the whole system work, government needs to end years of cuts and start to invest in keeping the nation healthy.

Strategy: commit to a cross-government strategy to level up health outcomes and enable people to live longer in good health

The government has already committed to a target of enabling people to have 5 more years living in good health by 2035 and to close the gap between the richest and poorest. It has also committed to levelling up, which should include improving health. Meeting these targets and creating an effective public health system needs action across the whole of government. It cannot be left to the health and social care systems. A successful public health system, therefore, must be supported by a cross-government strategy to improve and level up health. The Health Foundation is currently undertaking work to identify the key policies that should be part of a cross-government strategy, but a government commitment to the principle is needed urgently.

Structures: an independent body reporting on the state of the nation’s health

The health of the nation is one of the most important assets for the future of the country. Yet there is no regularly published assessment of key trends brought to the attention of the government and its departments through, for example, a report to parliament. An independent public body is needed to give an objective view of current and future trends. This would include reporting regularly on trends in life expectancy, healthy life expectancy and inequalities in health. The function could be further developed to assess options for action that could be taken to improve health in view of these long term trends.⁷ The forthcoming National Health Index developed by ONS to sit alongside GDP as a measure of national success, could provide an important common currency for the assessments.³⁴ Equally important would be a requirement for government to respond to these independent assessments (a responsibility that could sit with the CMO), detailing the actions that would be taken as a result.

There is an opportunity now to create such a function, which currently does not exist. This could be done by creating a new standalone body or by embedding the function in an existing independent public body, such as the ONS.

Structures: create a strong national body to lead on improving the public's health

A key lesson from other countries is that effective local and regional public health work needs the support of a strong and effective national function. The National Institute for Health Protection should provide this for health protection work, but it is equally important that other areas of public health have strong national support and visible national leadership.

Key functions that should continue to be carried out at national level include:

- strategic long, medium and short-term advice to government (to a number of government departments) on policies that combine to improve the public's health and reduce inequalities, and those that may have a detrimental impact
- providing public health leadership, advice and support from the centre to the rest of the system
- research and analyses including primary research, systematic reviews, evaluations and practice guidance – this would include making independent, expert assessments of the forces driving the trends in health and evaluating the likely impact of different policy options on future trends
- data and analytics including the functions of PHE's fingertips system and national disease registries³⁵
- coordination with other nations of the UK and other countries
- a strategy for planning and training an effective public health workforce.

A number of different organisational structures could help to deliver these functions. Whichever is chosen, it is most likely to be effective if:

- **The bulk of health improvement functions are housed in one organisation.** This would ensure it has the 'critical mass' needed to provide credible visible leadership and expertise across government, to the wider public health system and to the public. This will also maximise the opportunities for synergies between different areas of public health, reduce fragmentation and make coordination between different parts of the system easier. PHE currently has a wide range of responsibilities, moving these into many different organisations is likely to lead to a lack of leadership and coordination on health improvement across the system.
- **The national public health function is science-led and evidence-based.** One of PHE's strengths has been its ability to produce authoritative, science-based guidance to inform local public health work (eg its Healthy child programme³⁶). This helps to prevent duplication and ensure that local services are based on the best available evidence. National public health organisations such as the Robert Koch Institute, led by respected scientists, are seen as being at the cutting edge of scientific knowledge, driving it forward, ensuring that national policy and local practice are informed by the best available evidence and data. It is vital that work to improve population health has this kind of scientific rigour.

- **There is some independence from day-to-day political control.** Some level of independence from day-to-day ministerial control and short-term political priorities is important if the national public health function is to give truly impartial scientific advice. This is important if the national function is to have a credible voice on key issues such as inequalities in health outcomes across England.
- **Ensure strong and productive working with national, regional and local levels of the system.** This needs to be built into plans for the national public health bodies from the beginning. The national function should not be designed to performance manage local areas but should play a supportive role and must have a duty to work collaboratively with other national bodies (such as the NIHP) as well as regional bodies and Directors of Public Health in local authorities.
- **There is full ongoing collaboration with other national agencies,** especially the new National Institute for Health Protection and NHS England.

A number of organisational structures have been proposed to house health improvement functions in the future. Each of these has strengths and weaknesses. Extensive consultation with key stakeholders will be needed not only to find an appropriate organisational structure but to design the new structures in such a way that strengthens, rather than weakens, the government's ability to improve public health.

The main options are outlined in Table 2 along with an assessment of which would be most viable.

Table 2: Options for organisational structures to lead on improving the public's health

Option	Advantages	Disadvantages	Comments
Expand the remit of the Chief Medical Officer's (CMO's) office	The CMO is widely seen as having a healthy level of independence from day-to-day political control, as well as the necessary scientific credibility to provide visible national leadership on key public health issues.	Would require significant expansion of existing resourcing of the CMO's office and would expand the CMO's responsibilities from a primary focus on scientific leadership and advice to one with significant managerial responsibilities.	The CMO role could be reframed as the 'Chief Public Health Officer' to reflect the broader remit of the role.
A new national organisation	Could provide visible leadership on public health at national level and have independence from day-to-day political control.	Significant transition costs for setting up a new organisation from scratch. Independence from government might limit its influence over policy and resources.	Would require significant political appetite which may be lacking.
Local authorities take on additional responsibilities	Likely to produce services that work better on the ground, based on local knowledge and community involvement.	Some functions are better done once at national level to avoid duplication and where highly specialist expertise is needed and consolidated.	This option is likely to work for some functions but does not remove the need for national leadership on improving health.
Department of Health and Social Care takes on additional responsibilities	Could provide a relatively smooth transition into an existing, organisation. An institute set up within DHSC could provide visible national leadership.	Would remove any independence from day-to-day political control, which could be detrimental in some areas of work. Would need a very significant change in capacity and focus for DHSC.	Some stakeholders we consulted were concerned about the loss of an independent voice on public health issues.
NHS England or Integrated Care Systems	Screening, vaccinations and some preventive services are already delivered by the NHS.	High risk of preventative, public health work being deprioritised due to short-term pressures on the health care system. Likely to reduce influence over the wider determinants of health, as these are longer term rather than short term issues.	Many stakeholders we consulted were not supportive of this due to concerns about a medicalisation and deprioritisation of public health.

Structures: bolster local and regional infrastructure with strong links to national agencies

Local authority teams, led by Directors of Public Health, currently house most of the public health workforce and receive the bulk of public health funding (see Resources). Major cuts to that funding in recent years, however, have left the local system underresourced in dealing with a wide range of responsibilities including responding to the pandemic.

The local element of the public health system is on the front line of responding to COVID-19 and it is important that it remains stable and is given the support needed to meet current challenges. It should not be subject to major reform as part of the current reorganisation – though it does need further investment (see Resources). Positioning public health functions in local authorities allows important integration with other public services and enables Directors of Public Health to influence many of the wider issues that make places healthy, including housing, transport, social care and the environment.

There are some additional functions that could be passed from national and regional level to local authorities, when PHE is disbanded. For example, some regional networking, data analysis and quality improvement functions currently led by PHE centres could be performed by a lead local authority on behalf of a region, though this would need additional resources.

There have been suggestions that some local authority public health responsibilities could be moved into Integrated Care Systems (ICSs).³⁷ This would be an unnecessary and unhelpful reorganisation of responsibilities at this time. Joint commissioning work between local authorities are likely to emerge in future but should not part of a top-down reorganisation.

With the dissolution of PHE, new arrangements need to be found to house the regional tier that is currently run by PHE's centre and regional teams. Stakeholders have consistently emphasised the importance of the regional infrastructure for creating cooperation between local areas, translating national guidance into the local context and coordinating with regional NHS and governmental structures.

Some of these could be taken on by local authorities but other functions may be better placed within existing regional structures. This could be within regional governmental bodies (eg combined authorities where these exist). Wherever these functions are housed it will be important that these have a duty to work very closely with local authorities and continue to act as a link between national and local bodies.

Resources: invest to improve health and reduce inequalities

Even a well-designed new system will be ineffective unless properly resourced. The pandemic and other recent trends in the public's health, such as the slowing of improvements in life expectancy and widening of inequalities, make this a crucial time to invest in England's public health infrastructure. Full details of our analysis of public health funding are given in the Appendix.

What do we currently spend on public health?

The response to COVID-19 has seen huge sums of money invested in protecting the nation's health. The amount of money invested since the start of 2020 dwarfs the sums spent on the formal public health system in a normal year.

Prior to the pandemic, key areas of public health funding were:

- **The public health grant to local authorities: £3.3bn for 2020/21.** This received a small real-terms boost of £65m in 2021/22 prices in April 2020 but that followed 5 years of real-terms cuts, still leaving the grant 23% lower in real terms than in 2015/16.
- **PHE: net spend in 2019/20 was £298m in 2020/21 price terms.**^{38,39} This has also seen real-terms cuts totalling 17% between 2015/16 and 2019/20. These cuts fell particularly on the non-health protection parts of PHE's budget, which experienced 23% real-terms cuts over the period. Over the same period health protection spending increased although the number of staff working on it declined. In 2019/20, £76m was spent on local centres and regions, which experienced a reduction of 16% in real terms since 2015/16.

How much funding is needed for the future public health system?

The public health system as a whole has seen major cuts to funding since 2015/16. This has led to a smaller workforce and weakened the system as a whole, making it less ready to respond to the COVID-19 pandemic. Since the pandemic began, huge resources have been put into the response. The NHS Test and Trace System alone has had £22bn invested since the start of the pandemic.⁴⁰

In addition to the short-term funding being poured into controlling the pandemic, there is an urgent need to strengthen funding to the core public health system. This is vital not only to ensure the system is better prepared for future health shocks, but also to combat the medium and long-term impacts of the pandemic, and to redress the years of cuts that have weakened the system. If ever there was a time to invest in keeping the population healthy, it is now,⁴¹ and the public health system is a vital part of achieving that.

The amounts needed are small in comparison to the pandemic response and the annual budget of NHS England.

- The minimum funding required to stabilise the public health system and reverse the cuts since 2015 is £1.2bn. This includes an additional £1.1bn needed for the public health grant (taking it to £4.3bn per year) to restore it to its 2015/16 levels on a real terms, per capita basis. And an additional £56m is needed to restore cuts to PHE's non-health protection functions in real terms.
- To level up public health across the country an additional £2.6bn should be invested in the public health grant to local authorities. This figure is based on distributing funding in line with the past recommendations of the Advisory Committee on Resource Allocation (the ACRA formula) while ensuring that no area has its funding reduced (see Appendix for details).

- To ensure that investment in keeping people healthy keeps pace with spending on treating illness, government should commit to increasing public health spending in line with NHS funding in future.

Conclusion

This is a time of enormous challenges for the nation's health. But it is also a time when there are real opportunities to put in place the strategy, structures and resources needed to improve the public's health in future. Out of the disruption caused by the pandemic and the abolition of PHE, a new public health system needs to emerge that will support the government's ambitions – namely to enable everyone to live 5 more years in good health and to close the gap between the richest and the poorest.

Making the transition to a new system during the pandemic is, in itself, a significant challenge, which requires careful management and wide consultation. In doing this, government should be guided by the lessons from previous reorganisations we have outlined.

Beyond managing the transition well, the government also needs to plan a future system that is more effective than the current one. This needs three things to be in place:

- **A new strategy** in the form of genuine a cross-government commitment to levelling up health.
- **Strengthened structures** including: an independent body reporting on the state of the nation's health; a national lead on improving health; a strengthened regional and local system.
- **Adequate resources: investment for the long term** is vital and the scale of the investment needed small compared with what has been spent on controlling COVID-19.

If government can do all of these things, England could emerge from the pandemic with a system that is better at keeping people healthy and reducing health inequalities. This will improve people's lives, allow our economy to recover more effectively from the pandemic and make the nation better prepared for future health shocks.

Appendix: Public health funding

What is needed to fund the local system?

The public health grant is given by central government to local authorities to deliver vital preventative and treatment services, including help to stop smoking, children's health services, sexual health clinics and drug and alcohol services.

In 2020/21, the allocation made from April 2020 was £3.3bn. This is an increase on the previous year of 2% (after inflation) or £65m. However, this still means the public health grant is below its peak in 2015/16 of £4.2bn in 2021/22 price terms* by around 23%. Factoring in population growth over this period means the shortfall is even larger, around 26%. It would take a further £1.1bn increase in the grant to reverse the real terms per capita cuts since 2015/16.

The Advisory Committee on Resource Allocation (ACRA) developed a formula to allocate the public health grant between local authorities taking account of factors including mortality rates for those younger than 75 and demand for sexual health, substance misuse and children's services. ACRA provides advice to government on how health spending should be distributed to support 'equal opportunity of access for equal need' and reduce avoidable health inequalities. ACRA also recommended that funding increases in areas where funding allocations fell below their proposed amounts should experience faster growth in spend of up to 10%.

However, year-on-year reductions in the public health grant mean that allocations have not been adjusted. And any such change in distribution would lead to some areas receiving a greater cut to funding than others.

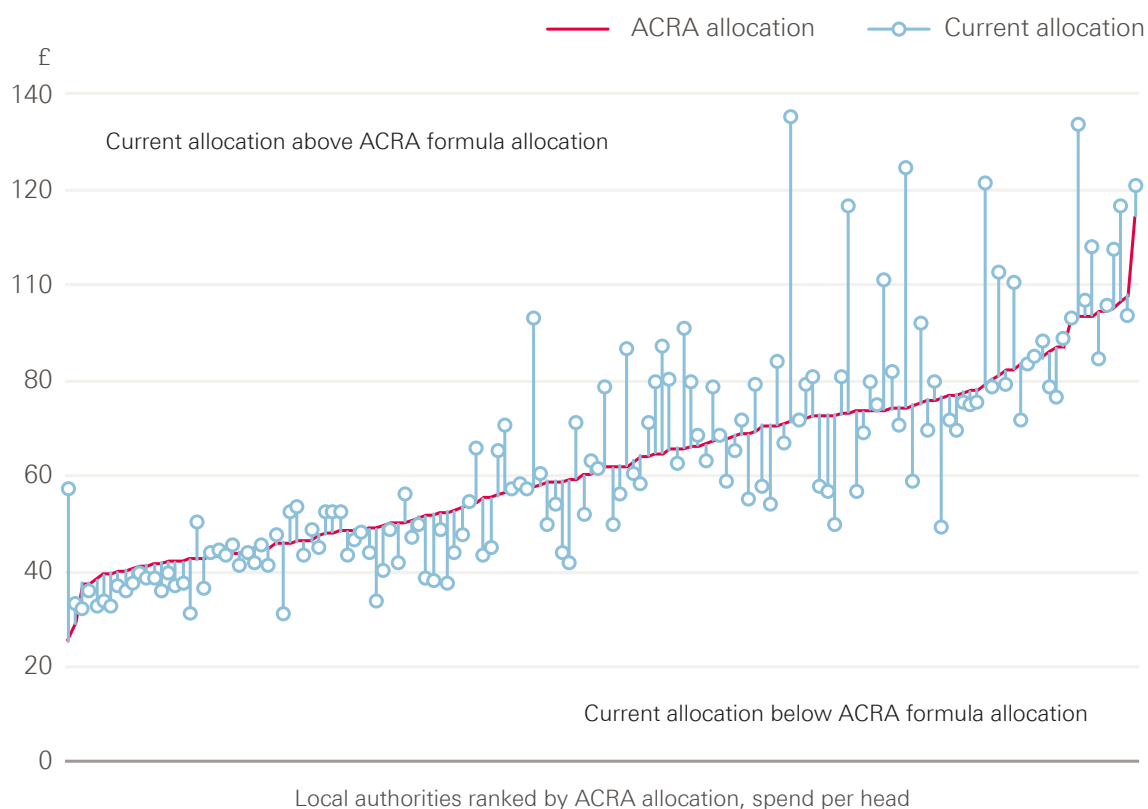
Figure A1 shows the current distribution of the public health grant against that calculated using the ACRA formula, given the 2020/21 grant of £3.2bn. Local areas are ranked by the level of per-person funding suggested by the ACRA formula (the red line) and contrasted with (blue lines) the current per-person funding for the same year (blue dots). (This figure is not intended to indicate that any under- or over-funding is allocated to specific areas.)

The extent to which the ACRA-formulated funding distribution would differ from the current distribution is mixed. Broadly, the areas with least need would receive slightly less funding than at present, and some areas with the most need would also receive more than they do at present. There are some outliers with significantly higher levels of current spend than other areas with a similar level of need (notably, Kensington and Chelsea, Knowsley and Blackpool). These differences relate to historical spending patterns.⁴²

To ensure that the public health grant allocations met at least the allocations set out by the ACRA formula, but leave no area worse off than their current funding allows, this would require additional spend of £2.6bn a year once real terms per capita funding had been restored.

* 2021/22 is being used as a base year for real terms calculations to minimise distortion from the GDP deflator in 2020/21 due to the pandemic.

Figure A1: Public health grant allocations compared with ACRA-formula based allocations by local authority (spend per capita, 2020/21)



Note: Advisory Committee on the Resource Allocation (ACRA)-recommended allocation applies the relative allocation based on the latest provisional formula applied to published total allocations of spend in 2020/21.
 Source: Health Foundation analysis of Resource Allocation Team, Public Health Policy and Strategy Group. Public Health Grant: Exposition Book for Proposed Formula for 2016–17 Target Allocations – Technical Guide. Department of Health, 2015 and DHSC, Public Health Grant allocations, 2020–21

What funding is needed for local and regional systems?

PHE has a variety of functions and a total net funding in 2019/20 of £298m in 2021/22 prices. Based on our current understanding of which functions will be merged to form the National Institute for Health Protection a total of £114m would go into the new agency, leaving £185m for other activity.

The table below shows the level of spend on the different functions within PHE as set out in their 2019/20 business plan but expressed in 2021/22 price terms. In estimating total spend on each function we have apportioned the administration budget in line with the overall share of spend on each function along with £75m of ‘royalties and balance’ to net against spend.

Table A1: Public Health England spend by function and change in spend by function, 2015/16 to 2019/20: £m, 2021/22 price terms

	Change in spend					
	2015/16	2016/17	2017/18	2018/19	2019/20	2015/16 to 2019/20
Protection from infectious diseases	59.0	74.4	89.1	85.1	90.2	+53%
Local centres and regions	89.5	80.6	74.4	73.6	75.5	-16%
Direct to the public	54.8	46.4	45.6	44.3	33.0	-40%
Knowledge, intelligence and research	32.0	32.2	26.3	20.4	30.6	-4%
Protection from environmental hazards and emergency preparedness	30.0	25.1	19.8	24.4	26.4	-11%
National disease registration	13.3	11.7	16.2	16.0	16.7	+26%
Health and wellbeing	38.5	33.1	28.4	33.2	14.6	-62%
Screening programmes and QA	16.1	14.5	15.2	14.3	13.3	-18%
Global health	-	-	3.5	3.1	2.7	-22%
Nursing	-	1.2	1.3	1.5	1.8	+45% ⁻
Total*	357.6	334.7	315.5	310.5	397.9	-17%

*Notes: Change in spend for global health and nursing is from 2017/18 to 2019/20 and 2016/17 to 2019/20 respectively. Total includes business support, office costs and digital, and royalties and balance which are not shown separately.

Source: PHE Business Plans; Office for Budget Responsibility, Economic and Fiscal Outlook, March 2020.

Overall the PHE budget has reduced in real terms by 17% or £60m since 2015/16. However, the change in spend for different PHE functions varies, with spend on protection from infectious diseases increasing by 53% between 2015/16 and 2019/20 but spend on health and wellbeing (national expertise in public health evidence-based interventions) falling by 62%. This means that spend on the non-health protection parts of PHE has fallen by 22% or £56m since 2015/16.

Table A2: PHE staff numbers

	2015	2016	2017	2018	2019
Protection from infectious diseases	2,397	2,272	2,201	2,082	2,093
National disease registration	293	319	362	372	359
Nursing	-	10	12	17	18
Protection from environmental hazards and emergency preparedness	517	486	438	516	476
Local centres and regions	1,075	1,010	1,033	1,042	1,027
Knowledge, intelligence and research	322	316	290	257	318
Screening programmes and QA	264	273	278	285	289
Health and wellbeing	199	202	227	236	107
Direct to the public	60	65	4	98	79
Global health	20	37	66	30	90
Business support, office costs and digital	480	532	518	573	644
Total*	5,627	5,522	5,519	5,505	5,500

Source: PHE Business Plans

Acknowledgements

The authors would like to gratefully acknowledge those who shared their views about the future of PHE in August 2020, via email or in conversation. The discussions and views were very helpful in shaping the thinking in this paper.

Louise Smith, Director of Public Health, Norfolk County Council

Muna Abdel Aziz, Director of Public Health, Salford City Council

Rupert Suckling, Director of Public Health, Doncaster Council

Jim McManus, Director of Public Health, Hertfordshire County Council,
Vice-President Association of Directors of Public Health

Alice Wiseman, Director of Public Health, Gateshead Council

Helen Christmas, Acting Consultant in Public Health, Hull City Council

Yannish Naik, Acting Consultant in Public Health, West Yorkshire and Harrogate Health and Care Partnership

Andrew Furber, Regional Director PHE NW and Regional Director of Public Health NHS NW at PHE

Harry Rutter, Professor of Global Public Health, University of Bath

Christina Marriott, Chief Executive, Royal Society for Public Health

Nicola Close, Chief Executive, Association of Directors of Public Health

James Gore, Chief Executive, Faculty of Public Health

Maggie Rae, President, Faculty of Public Health

Rulan Vasani, Network Lead, UK Public Health Network

Vanessa Lucas, Adviser, Local Government Association

Andy Bell, Deputy Chief Executive, Centre for Mental Health

Leila Reyburn, Policy and Campaigns Manager, Mind.

Errors and omissions remain the responsibility of the authors alone.

When referencing this publication please use the following URL:

<https://doi.org/10.37829/HF-2020-HL11>

References

1. Department for Business, Energy & Industrial Strategy. The Grand Challenges. Department for Business, Energy & Industrial Strategy; 2019 (<https://www.gov.uk/government/publications/industrial-strategy-the-grand-challenges/industrial-strategy-the-grand-challenges#ageing-society>).
2. Resolution Foundation. Here today, gone tomorrow: putting Spending Review 2020 into context. Resolution Foundation; November 2020 (<https://www.resolutionfoundation.org/app/uploads/2020/11/Here-today-gone-tomorrow.pdf>).
3. Britton J, Farquharson C, Sibietta L. 2019 annual report on education spending in England. Institute for Fiscal Studies; 2019 (<https://www.ifs.org.uk/publications/14369>).
4. Office for National Statistics. Avoidable mortality in the UK: 2018. Office for National Statistics; 2020 (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/avoidablemortalityinenglandandwales/2018>).
5. Reference full analysis paper to be published alongside this paper
6. Leon DA, Jdanov DA, Shkolnikov VM. Trends in life expectancy and age-specific mortality in England and Wales, 1970–2016, in comparison with a set of 22 high-income countries: an analysis of vital statistics data. *Lancet Public Health*. 2019; 4: e575–82.
7. Marshall L, Finch D, Cairncross L, Bibby J. Mortality and life expectancy trends in the UK: Stalling progress. Health Foundation; 2019 (<https://www.health.org.uk/publications/reports/mortality-and-life-expectancy-trends-in-the-uk>).
8. Marmot M, Allen J, Boyce T, Goldblatt P, Morrison J. (2020) Health equity in England: The Marmot Review 10 years on. Institute of Health Equity; 2020 (<http://www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on/the-marmot-review-10-years-on-full-report.pdf>).
9. Marshall L, Finch D, Cairncross L, Bibby J. Briefing: The nation's health as an asset: Building the evidence on the social and economic value of health. Health Foundation; 2018 (<https://www.health.org.uk/publications/the-nations-health-as-an-asset>).
10. Elwell-Sutton T, Tinson A, Greszczuk C, Finch D, Holt-White E, Everest G, Mihaylova N, Wood S, Bibby J. Creating healthy lives: A whole-government approach to long-term investment in the nation's health. Health Foundation; 2019 (<https://www.health.org.uk/publications/reports/creating-healthy-lives>).
11. Wilson H, Finch D, Elwell-Sutton T, Suleman M. 'Levelling up' just got much harder. Health Foundation; 2020 (<https://www.health.org.uk/news-and-comment/blogs/levelling-up-just-got-much-harder>).
12. Bibby J, Lovell N. What Makes us Healthy? An Introduction to the Social Determinants of Health. Health Foundation; 2018 (<https://www.health.org.uk/publications/what-makes-us-healthy>).
13. Elwell-Sutton T, Marshall L, Finch D, Bibby J. The local health environment: health Foundation chapter in the Chief Medical Officer annual report 2018. Health Foundation; 2018 (<https://www.health.org.uk/publications/reports/the-local-health-environment>).
14. Greszczuk C. Implementing health in all policies: Lessons from around the world. Health Foundation; 2019 (<https://www.health.org.uk/publications/reports/implementing-health-in-all-policies>).
15. Tinson A. What can former 'red wall' areas tell us about the link between food environments and obesity? Health Foundation; 2020 (<https://www.health.org.uk/news-and-comment/charts-and-infographics/what-can-former-red-wall-areas-tell-us-about-food-environments-and-obesity>).
16. Ipsos Mori. Public perceptions of health and social care in light of COVID-19 (July 2020). Health Foundation; 2020 (<https://www.health.org.uk/publications/reports/public-perceptions-of-health-and-social-care-in-light-of-covid-19-july-2020>).
17. Ipsos Mori. Public perceptions of health and social care in light of COVID-19 (May 2020). Health Foundation; 2020 (<https://www.health.org.uk/publications/reports/public-perceptions-of-health-and-social-care-in-light-of-covid-19-may-2020>).
18. Newton J, Briggs A, Murray C, Dicker D, Foreman K, Wang H et al. "Changes in health in England, with analysis by English regions and areas of deprivation, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013". *The Lancet*. 2015;386(10010):2257–2274.
19. Masters R, Anwar E, Collins B, Cookson R, Capewell S. Return on investment of public health interventions: a systematic review. *Journal of Epidemiology & Community Health*. 2017; 71:827-834.
20. The Social and Economic Value of Health [webpage]. The Health Foundation; 2019 (www.health.org.uk/funding-and-partnerships/programmes/the-social-and-economic-value-of-health).
21. Bryan M, Bryce AM, Jennifer R. Presenteeism in the UK: Effects of physical and mental health on worker productivity. *EconPapers*. 2020.
22. Scarborough P, Adhikari V, Harrington RA, Elhussein A, Briggs A, et al. Impact of the announcement and implementation of the UK Soft Drinks Industry Levy on sugar content, price, product size and number of available soft drinks in the UK 2015-19: A controlled interrupted time series analysis. *PLOS Medicine*. 2020; 17(2): e1003025.
23. Davies SC. Time to Solve Childhood Obesity. An Independent Report by the Chief Medical Officer. Department of Health Social Care; 2019 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/837907/cmo-special-report-childhood-obesity-october-2019.pdf).

24. Beech J, Cooper E, Holmes J, McKenna H. What role do taxes and regulation play in promoting better health? The Kings Fund; 2020 (<https://www.kingsfund.org.uk/sites/default/files/2020-03/tax-regulation-briefing-2020.pdf>).
25. Fine P, Victora CG, Rothman KJ, Moore PS, Chang Y, Curtis V, Heymann DL, Slutkin G, May RM, Patel V, Roberts I, Wortley R, Torgerson C, Deaton A. John Snow's legacy: epidemiology without borders. *Lancet*. 2013; 381: 1302–1311.
26. Naik Y, Abbs I, Elwell-Sutton T, Bibby J, Spencelayh E, Shafique A, Burbidge I, Antink B, Alanko L, Anttila J. Using economic development to improve health and reduce health inequalities. Health Foundation; 2020 (<https://www.health.org.uk/publications/reports/using-economic-development-to-improve-health-and-reduce-health-inequalities>).
27. Public Health England. Guidance: Directors of public health in England [webpage]. Public Health England; 2020 (<https://www.gov.uk/government/publications/directors-of-public-health-in-england-2/directors-of-public-health-in-england>).
28. Dixon J. Public Health England: the implications of this restructure go well beyond Covid-19. *Prospect*; 25 August 2020 (<https://www.prospectmagazine.co.uk/politics/public-health-england-disband-restructure-coronavirus-covid-19>).
29. Rechel B, Jakubowski E, Mckee M, Nolte E. Organization and financing of public health services in Europe. World Health Organisation; 2018 (https://www.euro.who.int/__data/assets/pdf_file/0009/383544/hp-series-50-eng.pdf).
30. Briggs A, Jenkins D, Fraser C. NHS Test and Trace: the journey so far. Health Foundation; 2020 (<https://www.health.org.uk/publications/long-reads/nhs-test-and-trace-the-journey-so-far>).
31. Richards M, Thorlby R, Fisher R, Torton C. Unfinished business: an assessment of the national approach to improving cancer services in England 1995–2015. Health Foundation; 2018 (<https://www.health.org.uk/publications/unfinished-business>).
32. Dayan M. Lesson 5: Don't overrate structural reorganization. The Nuffield Trust; 2018 (<https://www.nuffieldtrust.org.uk/news-item/lesson-5-don-t-overrate-structural-reorganisation>).
33. Walshe K. Counting the cost of England's NHS reorganisation. *BMJ*. 2014; 349: g6340 (<https://www.bmj.com/bmj/section-pdf/778631?path=/bmj/349/7980/Observations.full.pdf>).
34. Pearson-Stuttard J, Murphy O, Davies SC. A new Health Index for England: the Chief Medical Officer's 2018 annual report. *Lancet*. 2019; 393: 10-11.
35. Public Health England. Public Health Profiles [webpage]. Public Health England; 2020 (<https://fingertips.phe.org.uk/>).
36. Public Health England. Guidance: Healthy child programme 0 to 19: health visitor and school nurse commissioning [webpage]. Public Health England; 2016 (<https://www.gov.uk/government/publications/healthy-child-programme-0-to-19-health-visitor-and-school-nurse-commissioning>).
37. Brennan Sharon. ICS's should have 'accountability' for public health, says new national lead. *HSJ*; 3 November 2020 (<https://www.hsj.co.uk/commissioning/give-public-health-powers-to-icss-says-new-national-lead/7028725.article>).
38. Public Health England. Annual business plan 2019/20. Public Health England; April 2019 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/796459/PHE_Business_plan_2019.pdf).
39. Office for Budget Responsibility. Economic and fiscal outlook. OBR; 2020(<https://obr.uk/efo/economic-and-fiscal-outlook-march-2020/>).
40. HM Treasury. Policy paper: Winter Economy Plan. HM Treasury; 2020 (<https://www.gov.uk/government/publications/winter-economy-plan/winter-economy-plan#policy-decisions>).
41. Bibby J, Everest G, Abbs I. Will COVID-19 be a watershed moment for health inequalities? Health Foundation; 2020 (<https://www.health.org.uk/publications/long-reads/will-covid-19-be-a-watershed-moment-for-health-inequalities>).
42. Buck D. Who Gets What is Tricky: Allocating Public Health Resources to Local Authorities. The King's Fund; 2012 (<https://www.kingsfund.org.uk/blog/2012/02/who-gets-what-gets-tricky-allocating-public-health-resources-local-authorities>).

The Health Foundation

8 Salisbury Square, London EC4Y 8AP

T +44 (0)20 7257 8000

E info@health.org.uk

🐦 [@HealthFdn](https://twitter.com/HealthFdn)

www.health.org.uk

Sign up for our newsletter

www.health.org.uk/enewsletter

The Health Foundation is an independent charity committed to bringing about better health and health care for people in the UK. Our aim is a healthier population, supported by high quality health care.

ISBN: 978-1-911615-53-8

Briefing: Improving the nation's health

Registered charity number: 286967

Registered company number: 1714937

© 2020 The Health Foundation