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Partnership for Health System  
Sustainability and Resilience

Founded by the World Economic Forum,  
London School of Economics and AstraZeneca

# Sustainability and Resilience in the English Health System

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# Executive summary

## Introduction

The Covid-19 pandemic has been the greatest shock the National Health Service (NHS) has had to face since its establishment in 1948. The UK experienced one of the highest death rates attributable to COVID-19 globally and understanding lessons for the future sustainability and resilience of the NHS is vital.

Sustainability concerns the health system’s ability to provide key functions such as provision of services, financial protection, resource generation and responsiveness to population needs in an ongoing way. Resilience refers to a health systems ability to identify, prevent, mitigate and rebound from shocks while minimising negative impacts on population health, health services and the wider economy.

As part of the Partnership for Global Health Resilience and Sustainability (PHSSR) this report uses COVID-19 as a critical event to evaluate the sustainability and resilience of the health system in England according to five key domains:

- Governance
- Health System Financing
- Workforce
- Medicines and Technology
- Service Delivery

The report additionally includes two case-studies, examining areas where the NHS has shown innovation, either through long-term policy or as a response to COVID-19. For England, workforce and skill mix and the acceleration of the digitisation of primary care as part of the COVID-19 response were selected. The report draws on recent data, health policy and available evaluations in each of the areas. Interviews were held with five stakeholders relevant to the domains to add to the analysis and emerging recommendations.

## Findings: key themes for sustainability and resilience

The response to the COVID-19 pandemic has emphasised key strengths and underlying issues for the health and care system in England. Table 1 summarises the key findings for the five domains.

**Table 1: Sustainability and resilience: summary of findings by key domains**

Domains	Key findings	
	Sustainability	Resilience
Governance	<ul style="list-style-type: none"> <li>▪ The governance, accountability and regulatory arrangements are complex in the English Health system and there is a lasting tension between the centre and local levels of the NHS and government.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Central government lacked the means to effectively coordinate and communicate with local government and as a result has failed to capitalise fully and invest further in local public health capabilities.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ England has significant public health expertise at national and local levels although public health</li> </ul>	<ul style="list-style-type: none"> <li>▪ The decision was taken to replace Public Health England during the COVID-19 response with as yet unclear arrangements for a new</li> </ul>

	has lacked stability within the system for the last twenty years.	National Institute for Health Protection or place for the wider remit of public health in the system.
<b>Health system financing</b>	<ul style="list-style-type: none"> <li>Spending reviews and allocations to the health and care sector suffer from short-termism and lack transparency.</li> <li>Within hospital Trusts, capital budgets have been increasingly raided to address revenue pressures.</li> </ul>	<ul style="list-style-type: none"> <li>Budget pressures and resulting under investment in infrastructure left the NHS with little excess capacity in terms of hospital beds, critical care capacity and diagnostics.</li> </ul>
	<ul style="list-style-type: none"> <li>Payments to providers do not adequately align with the broader objectives of the health system such as prevention and integration.</li> </ul>	<ul style="list-style-type: none"> <li>Over £31 billion of additional funding has been approved for health services in response to the COVID-19 pandemic. There are questions around whether greater investment in non-crisis times could have reduced spend overall.</li> </ul>
<b>Workforce</b>	<ul style="list-style-type: none"> <li>The NHS and social care face chronic workforce shortages, which many see as evidence of ineffective workforce planning.</li> <li>The workforce has at times been slow to adapt to meet the needs of a growing multimorbid and ageing population.</li> </ul>	<ul style="list-style-type: none"> <li>The NHS was able to redeploy staff quickly to unfamiliar areas as part of the COVID-19 response.</li> <li>NHS efforts to increase capacity through the development of temporary hospitals were undermined by a lack of available staff.</li> </ul>
	<ul style="list-style-type: none"> <li>Responses to these challenges have focused on innovation in skill-mix and increasing use of technology.</li> </ul>	<ul style="list-style-type: none"> <li>Experiences during the pandemic, exacerbated pre-existing concerns for the physical and mental health and wellbeing of a stretched workforce.</li> </ul>
<b>Medicines and Technologies</b>	<ul style="list-style-type: none"> <li>The UK has established mechanisms for the regulation of medicines including in the case of public health threats.</li> <li>Diffusion of novel health technologies, such as medicines and devices, is sometimes slow and inconsistent across the UK.</li> </ul>	<ul style="list-style-type: none"> <li>The Medicines and Healthcare products Regulatory Agency (MHRA) was able to review and approve COVID-19 vaccines more rapidly than other regulatory agencies.</li> </ul>
	<ul style="list-style-type: none"> <li>Continuing efficiency drives had led to a lessening of the value of stockpile of emergency health supplies over the past decade.</li> </ul>	<ul style="list-style-type: none"> <li>Pre-existing stockpiles of personal protective equipment were not sufficient, sometimes out of date, and lacking in essential items. The response of NHS Supply Chain could be considered slow and confused.</li> </ul>
<b>Service delivery</b>	<ul style="list-style-type: none"> <li>Following sustained efficiency drives the NHS was regarded to be</li> </ul>	<ul style="list-style-type: none"> <li>The NHS responded with speed and innovation including the</li> </ul>



	<p>‘running hot’ at the time of the COVID-19 pandemic. Preventing the NHS becoming overwhelmed has been a central focus of the pandemic response.</p>	<p>redeployment of staff and expansion of critical care capacity.</p>
	<ul style="list-style-type: none"> <li>▪ In wave 1 of the pandemic elective care, including over two-million non-urgent surgeries, had to be cancelled. In the winter of 2020-21 the NHS is having to care for increasing numbers of COVID-19 patients, roll-out vaccinations and address a backlog of care.</li> </ul>	<ul style="list-style-type: none"> <li>▪ There has been rapid adoption and utilization of phone and video consultations to the extent that they accounted for 85% of consultations at the peak of wave 1.</li> </ul>

The NHS has adapted quickly and shown innovation in the response including through redeployment of staff, new ways of working across the system and accelerated progress in areas such as digitisation. It was also able to create critical care capacity through the rapid establishment of, ultimately underutilised, ‘Nightingale’ (field) hospitals. As a tax-based system providing care on the basis of need rather than ability to pay, it may have also mitigated the extent of inequalities in outcomes from the virus. The UK population enjoys a high level of protection against the financial consequences of ill-health, with one of the lowest rates of catastrophic health expenditure globally. Although the system did require manual verification, NHS data assets were utilised to quickly identify vulnerable groups of patients in order to advise them of their heightened risk and to shield. In the first phase of the pandemic, the NHS had to stop most elective care. The NHS has attempted to continue elective care in the second phase, but this has involved increased reliance on the independent sector and it will likely take several years for waiting lists to return to pre pandemic levels.

Alongside our analysis across the five key domains, we have also identified a number of cross-cutting themes. These are long-standing, interrelated and unresolved factors that have influenced the system’s ability to respond to the pandemic:

**Role of the Centre** – The response has illustrated tensions between both central and local governance. Central government has lacked the means to effectively coordinate and communicate with local government which has resulted in decisions during the pandemic to not fully utilise local capabilities. The role of NHS England and Improvement leaves providers frustrated through the requirements of performance management, regulation and data generation particularly as perceived to be often misaligned to ambitions of the system, such as achieving greater integration. COVID-19 has seen a lessening of this to some extent and innovation in the ways parts of the system have worked together to develop local responses.

**Workforce** – The NHS and social care services have experienced chronic workforce shortages and retention challenges before COVID-19 with areas such as primary care and nursing commonly identified as being in crisis. The pandemic response saw innovation in the deployment of staff, but this will not address underlying problems of workforce numbers, staff wellbeing and retention. Workforce is key to the continuing response to COVID-19, including efforts to clear backlogs in care and to ensure the future sustainability and resilience of the NHS.

**Fragmentation across the health and care system** – Fragmentation across the system leads to vulnerability for the system and people. This was evident in the COVID-19 response, for example, in the discharge of patients from hospital to care homes and other settings without testing. The structure and governance of functions across Public Health England, NHS England and local authorities has also created tensions between national policy and local delivery. An integrated approach should be prioritised for future preparedness and planning and be underpinned by greater integration across the system.

**Underinvestment in key areas** – The COVID-19 response reflects ongoing underinvestment in key areas including public health, capital, social care and primary care. Public health has lacked stability in England over the last 20 years partly because of significant funding reductions at national and local levels. Capital spending in the NHS has been lower than other high-income countries and budget pressures have meant that infrastructure has often been neglected. Social care spending has not increased at the same rate as NHS spending, with resulting poor employment conditions leading to high turnover and vacancy rates. The proportion of spending on primary care has fallen relative to hospital spending despite a wider policy agenda of shifting care away from hospitals.

## Recommendations

From our rapid review, we focus on a number of focused recommendations which we envisage as suitable for rapid implementation. We make 21 recommendations across the five domains and case studies which are shown in the table below.

**Table 2: Recommendations across the five domains and case studies**

Domain	Recommendations
<p><b>Governance</b></p>	<p>Recommendation 1A: To launch a two-phase public and transparent inquiry into the UK’s response to the COVID-19 pandemic. The first as a rapid investigation to ensure early learning and the second a longer full-scale public inquiry. These should have a broad scope, including civil service and general government decision making capacity and the balance of responsibility between central and local government.</p> <p>Recommendation 1B: To clarify and strengthen mechanisms for coordination of preparedness and planning efforts at multiple levels, including between UK constituent countries, national to local government, and the NHS and social care.</p> <p>Recommendation 1C: To enhance public health capacity and value across government and the health and care system. This should include:</p> <ul style="list-style-type: none"> <li>▪ Ensuring national level responsibility for the remit of public health beyond health protection.</li> <li>▪ Clarification of the scope and function of the proposed National Institute for Health Protection in England.</li> <li>▪ Increased investment and further integration with the NHS and social care at both national and local level.</li> </ul>
<p><b>Health system financing</b></p>	<p>Recommendation 2A: To establish an independent authority responsible for building capacity in and routinely publishing projections of health and care spending, estimations of resource needs for capital and workforce, and analyses of the economic benefits of health to society.</p> <p>Recommendation 2B: For any future efficiency drives at both national, local, and organisational level to take a long-term perspective, to avoid the unintended consequences of targeting short-term efficiency gains such as reduced capital investment.</p>

	<p>Recommendation 2C: For NHS England and NHS Improvement to establish a series of regional expert hubs for capital management to share skills and expertise between hospital trusts on building business cases for investment and overseeing capital projects.</p> <p>Recommendation 2D: To reform the payment system to ensure it is aligned with the broader objectives of the health system such as supporting integration and prevention, including greater experimentation and evaluation of reimbursement mechanisms which can promote population health while still retaining mechanisms to promote efficiency, responsiveness and quality.</p>
<p><b>Workforce (including focus on skills mix)</b></p>	<p>Recommendation 3A: To protect the physical and mental wellbeing of health and social care staff during and beyond the pandemic, through investment in increased access to psychological support services and improving working environments to reduce stress and sustain motivation.</p> <p>Recommendation 3B: As part of efforts to reform the social care funding system, to commit to improving terms and conditions in the social care workforce, with a focus on achieving parity with the NHS, with improved remuneration, ensuring at least a living wage, pay banding, contracting and career progression.</p> <p>Recommendation 3C: To strengthen workforce planning and consideration of workforce flexibility and skills-mix. This should include:</p> <ul style="list-style-type: none"> <li>▪ An increase in funding to Health Education England for workforce development</li> <li>▪ The promotion of generalist skills across the health and care workforce required to manage an increasingly multimorbid population, through increased investment in primary care and the development of generalist skills in secondary care.</li> <li>▪ A strategy, to identify and embed new learnings around workforce flexibility and ensure skills gained during the pandemic are not lost. To be developed by professional regulators and Health Education England.</li> </ul> <p>Recommendation 3D: The National Institute for Health Protection should publish a workforce plan including staff skills mix as part of future preparedness and planning, with a pragmatic account of how much capacity workforce flexibility can create.</p> <p>Recommendation 3E: To develop the use of skill passports to promote standardisation of training and skill portability across regions and organisations, as part of wider efforts to implement competency-based training as a model for continuing professional development.</p> <p>Recommendation 3F: The National Institute for Health and Care Excellence (NICE) should take stock of learning during the pandemic, to consider recommendations for what more flexible safe staffing should look like during severe demand spikes, to ensure an evidence-based approach is available in future health shocks.</p>
<p><b>Medicines and technology (including focus on digitisation of primary care)</b></p>	<p>Recommendation 4A: To regularly monitor and publish prescribing data on access to and security of supply of medications, to ensure there is a system in place to stockpile necessary medications and respond to the risks in this area.</p>



	<p>Recommendation 4B: For NHS England to commit to international benchmarking of uptake of medicines, diagnostics and health information technology against other comparable high-income countries.</p> <p>Recommendation 4C: For NHS England and NHS X to ensure that local areas have developed and published a plausible implementation plan outlining the necessary steps and resources required to achieve a functioning and interoperable “Local Health Care Record”.</p> <p>Recommendation 4D: For NHS England and NHS Improvement to allocate a budget to achieving its digital ambitions based upon a published cost impact assessment and review of the pre-existing landscape of health information technology (HIT) at the local level.</p> <p>Recommendation 4E: To evaluate implications of increased uptake of remote teleconsultation on access to, continuity of, and quality of, care, including considerations of primary-secondary care interface, and clinician behaviours such as thresholds for prescriptions and ordering investigations.</p> <p>Recommendation 4F: For NHS England to develop guidance on the methodology to determine the optimal provision of face-to-face versus remote consultations based upon local population demographics and preferences.</p> <p>Recommendation 4G: To investigate the cost implications of providing services to different populations who prefer face-to-face versus remote consultation and vice-versa for primary care, and to adjust reimbursement mechanisms accordingly.</p>
<p><b>Service provision</b></p>	<p>Recommendation 5A: To address the backlog of diagnostic investigations by urgently increasing investment in diagnostic infrastructure and workforce, the establishment of community diagnostic hubs, and adaptation of skill-mix, as recommended by the Independent Review of Diagnostic Services for NHS England.</p> <p>Recommendation 5B: To make increased utilisation of the independent sector to clear backlogs of NHS elective care dependent upon central rather than local investment and commitment from the independent sector to align governance structures and information systems to NHS standards and practices.</p> <p>Recommendation 5C: To ensure enhancement of future resilience by maintaining an earmarked funding stream that aims to systematically capture and learn from innovation in service delivery during the different phases of the COVID-19 response and enable implementation of change.</p> <p>Recommendation 5D: To utilise improved system-wide preparedness planning as an opportunity to strengthen integration at the local level; through increased coordination of service delivery between sectors and the routine assessment of impact on sustainability and resilience within all planning and evaluation.</p>

# 1. Introduction

The Covid-19 pandemic has been the greatest shock the National Health Service (NHS) has faced since its establishment in 1948. The pandemic has led to over 82,000 deaths in the UK thus far (10 January 2021) and understanding lessons for the future sustainability and resilience of the NHS is vital.

As part of the Partnership for Global Health Resilience and Sustainability (PHSSR) this report uses COVID-19 as a critical event to evaluate the sustainability and resilience of the health system in England according to five key domains:

- Governance
- Health System Financing
- Workforce
- Medicines and Technology
- Service Delivery

Sustainability concerns the health system’s ability to provide key functions such as provision of services, financial protection, resource generation and responsiveness to population needs in an ongoing way. Resilience refers to a health systems ability to identify, prevent, mitigate and rebound from shocks while minimising negative impacts on population health, health services and the wider economy (see Table 1 for full definitions).

**Table 1: Definitions of health system sustainability and governance underpinning the analysis (1)**

Term	Definition
<b>Health system sustainability</b>	A health system’s ability to continually deliver the key health system functions of providing services, generating resources, financing, and stewardship, incorporating principles of fair financing, equity in access, and efficiency of care, in pursuit of its goals of improving population health, and responsiveness to the needs of the populations it serves, and to learn and improve in doing so.
<b>Health system resilience</b>	A health system’s ability to absorb, adapt to, learn, and recover from crises born of short-term shocks and accumulated stresses, in order to minimise their negative impact on population health and disruption caused to health services.

The report additionally includes two case-studies, examining areas where the NHS has shown innovation, either through long-term policy or as a response to COVID-19. For England, workforce and skill mix and the acceleration of the digitisation of primary care were selected. The report draws on a review of recent data, health policy and available evaluations in each of the domains. Interviews were held with five stakeholders (see Acknowledgements) relevant to the domains to add to the analysis and emerging recommendations.

The report includes a non-exhaustive set of focused recommendations which aim to be suitable for rapid implementation. It does not address more fundamental shifts in policy that may be required to address important and enduring issues such as persistent health inequalities. Further work and mechanisms to ensuring learning from the pandemic are paramount. Nonetheless the recommendations contribute to the debate of what actions are necessary to ensure the sustainability and the resilience of the health and care system to future shocks.

## 2. Domain 1: Governance

### 2.1 Sustainability

#### 2.1.1 Governance structure and strategic direction

The Department for Health and Social Care (DHSC) sets policy and direction for delivery of the Government's commitments on health and social care in England. In terms of the NHS, the DHSC sets the budget (specified in an annual 'mandate') but does not have direct responsibility for delivery. Instead, the DHSC works with arms lengths bodies such as NHS England (NHSE) and NHS Improvement (NHSI). NHS England, an executive non-departmental public body with statutory functions, is accountable to the Secretary of State for Health and the public, although accountability arrangements are complex.(2) The current strategy and direction for the NHS is set out in the NHS Long Term Plan, published in 2019 with a 10-year horizon.(3)

NHS England directly commissions some specialised services, military and veteran health services, health services for people in prisons, some public health functions (national immunisation and screening programmes) and primary care. Around two-thirds of the NHS budget is devolved to 135 Clinical Commissioning Groups (CCGs); clinically-led statutory NHS bodies with responsibility for planning and commissioning services for their local population. CCGs have accountability to the Secretary of State for Health through NHS England and have to adhere to annual reporting processes. Increasingly primary care services and some specialised services are co-commissioned between CCGs and NHS England.

Systems level planning has increased and evolved over the last five years in England. Currently 42 Integrated Care Systems (ICSs) (or in some areas Sustainability and Transformation Partnerships (STPs)) bring together a wide range of providers and commissioners, including local authorities to plan services. CCG numbers will reduce to align with these ICS/STP areas.(4) At a smaller level, Primary Care Networks have taken responsibility for providing a variety of community services such as social prescribing and mental health support for populations of 30-50,000. The greatest level of devolution has been seen in Greater Manchester where CCGs, local authorities and other bodies together have responsibility for all of the health and care budget.

#### 2.1.2 Public Health

From 2013 to 2020, Public Health England, an executive agency of DHSC with operational autonomy, had the remit of the protection of public health in England. Broadly national public health functions were split between PHE and NHSE. PHE coordinated several regional centres which were tasked with local surveillance and communicable disease control. PHE also had a broader remit and advised the government, NHS and local authorities on aspects of policy such as non-communicable diseases and inequalities. A separate public health grant is also distributed to teams in local authorities responsible for designing and monitoring local public health strategy and commissioning services such as sexual health clinics, health visiting and addiction support. As an Executive Agency, PHE was under more direct control from government than other arm's length bodies in the health and care system. PHE was accountable to the Secretary of State for Health and Social Care; reviewed for progress against agreed deliverables. In August 2020, during the COVID-19 pandemic, the government announced that PHE would be scrapped and partly replaced by the National Institute of Health Protection (NIHP). The NIHP seeks to bring together PHE, the test, track and trace system and the Joint Biosecurity Centre (established to provide analysis to inform local and national decision-making during COVID-19) under single leadership. The primary focus of NIHP will be on public health protection and infectious disease capability, raising concern about if and where the broader remit of public health will be placed.(5) Important questions need to be addressed regarding the UK's management of COVID-19, including the role of PHE, however most have agreed that sudden re-organisation will not address challenges but instead serve as a distraction.(6) An independent evaluation of PHE in 2017 considered it world leading as a public health

institution working in a complex environment though recommended closer working with the NHS from national to local levels.(7)

Public Health has lacked stability in the last two decades partly because of reductions in funding at both national and local levels,(8) but also because the structure and governance of functions across PHE, NHSE and local authorities creates tensions between national policy and local delivery. Public health moved back into local government in 2013 coinciding with a decade of austerity measures, resulting in a loss of staff and reduction in spending per person of up to 25% between 2014-15 and 2019-20.(8, 9) Moreover, moving responsibility for pandemic preparedness and communicable disease control to PHE reduced capacity and capability in local public health teams.(9) This erosion and fragmentation of public health capacity has been borne out in the response to COVID-19. Ineffective engagement between central government and local authorities contributed to the latter not having access to local test data from centrally organised home test kits and mobile testing sites until June 2020.(10) (9)

### 2.1.3 Social Care

Adult social care in England is the responsibility of local government. Local government is overseen by the Ministry of Housing, Communities and Local Government and accountability is on a local and democratic basis, to elected councillors rather than nationally to Secretary of State.(11) The DHSC maintain responsibility for financing and policy and significant national level decisions such as around eligibility and means testing criteria.

Most (adult) care and support is provided by unpaid relatives or friends ('carers').(12) 'Formal' care is provided by paid staff in various settings: residential and nursing homes; other accommodation (e.g. sheltered housing); people's own homes ('home care'); and community settings such as day centres. COVID-19 has demonstrated the intrinsic link between health and social care and the gaps between the systems. For example, through the impact of NHS discharge policies on excess mortality in care homes.(13)

### 2.1.4 Accountability

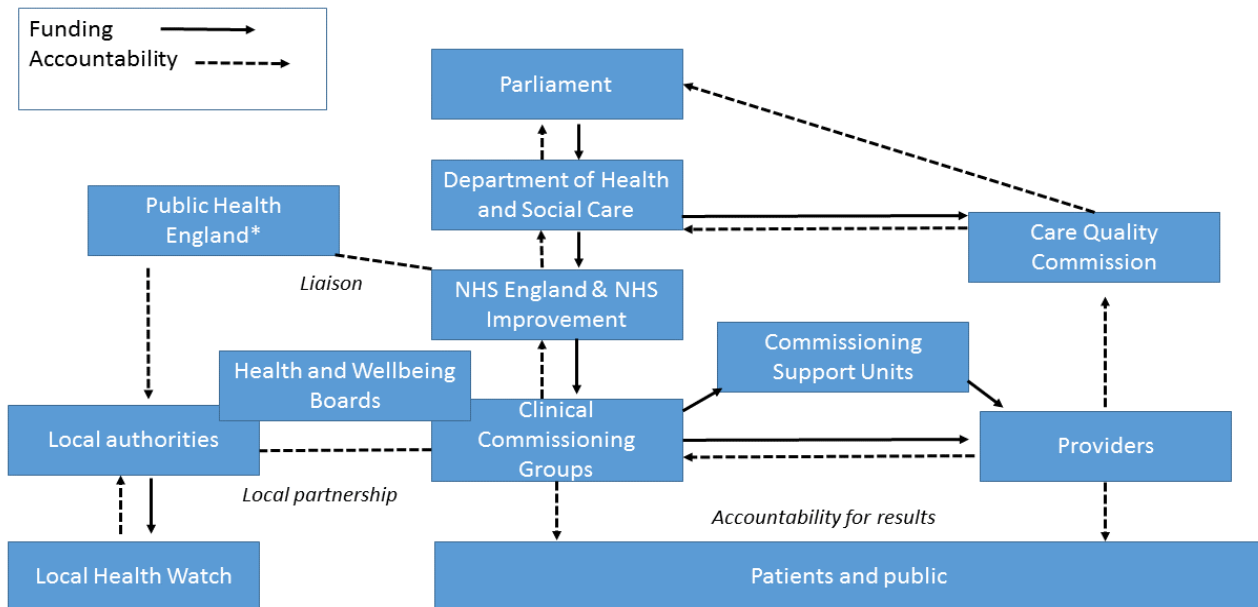
Regulation and routes of accountability (

**Figure 1**) are complex (14). An ongoing tension has been between the level of central and local control. The 2012 Health and Social Care Act on one hand encouraged greater decentralisation but at the same time greater centralisation of performance measurement and regulation. Since 2003, government has had the power to scrutinise and report on local NHS services but the role of formal local democracy in the NHS has been limited. Mechanisms of public accountability overall require clarification and strengthening. Unlike some countries, citizens do not have a legally enforceable right to health or defined benefit package. (15) Overtime, the NHS has withdrawn from certain types of care in England, including some dental care, and similar decisions could be made again without meaningful scrutiny.

In terms of regulation, a recent study identified at least 126 organisations with some regulatory influence in the NHS.(16) Common issues include overlaps and gaps in coverage by different bodies, whether regulatory bodies have sufficient independence from government and the burden of regulation on the NHS. The creation of NHS Improvement represented some rationalisation with the merger of several bodies in England, but data

requests remain high and in duplicate for NHS organisations. COVID-19 has seen some relaxation of standard reporting to allow organisations to focus on the pandemic response.(14) (17)

**Figure 1: Overview of accountability and funding flows in the NHS**



Source: updated from (14)

## 2.2 Resilience

### 2.2.1 COVID-19 preparedness and response

Underpinned by the Civil Contingencies Act 2004, the National Risk Register in the UK provides an assessment of the most significant emergencies that the UK could face over the following five years. New and emerging infectious diseases had been given increasing prominence in risk assessments but pandemic flu had persistently been highlighted as the greatest risk prior to the COVID-19 pandemic.(18, 19) As such, most government and the health system preparedness planning has focused around flu. Historic exercises had highlighted challenges that may impede a pandemic response including the effects of re-organisations, the lack of clear accountability arrangements and the lack of integration of public health in the NHS.(20)

The Scientific Advisory Group for Emergencies (SAGE) is responsible for making available scientific advice to decision makers to support UK cross-government decisions.(21) Scientific leadership is provided by the Chief Medical Officer for England and Government Chief Scientific Adviser. The level of transparency and influence of advice and pandemic planning in policy decisions has been criticised.(22) Initially, the government chose not to release minutes or membership of SAGE meetings.(23) In 2016, the UK undertook a large-scale pandemic exercise, Exercise Cygnus, which revealed how the UK would be under-resourced in terms of

hospital beds, critical care capacity, and PPE in the event of an influenza pandemic.(24) This remained unpublished for four years and although stated to have informed preparedness planning it is not clear to what extent recommendations were heeded.(24, 25)

Transparency and challenges of communication and coordination have extended to the devolved administration of the UK. Initially a common response was taken across UK constituent countries, partly driven by advice from key bodies such as SAGE and the Civil Contingencies Committee which have a UK-remit (security is not devolved in the UK). The responses diverged however from May when the UK government announced a planned lessening of restrictions without evident consultation with devolved administrations. The establishment of the Joint Biosecurity Centre to inform decision making in response to COVID-19 similarly appeared to give little consideration of the devolved nations or, at the time, integration of public health bodies.

### 2.2.2 Learning and adapting

The mechanisms of learning from the pandemic response are not clear though several initiatives have been launched centred around a reset for health and care in the UK.(26, 27) Within provider organisations, where there has been significant innovation, there has been learning, for example from establishment of the first field or 'Nightingale' hospitals. Criticism of the UK response has centred on leadership rather than the NHS response but accountability is not clear. Calls have been made for a public inquiry into the response, including better involvement of and accountability to the public.(28) This must be timely to ensure some of the beneficial changes are embedded and the system does not simply revert back.

## 2.3 Recommendations

Recommendation 1A: To launch a two-phase public and transparent inquiry into the UK's response to the COVID-19 pandemic. The first as a rapid investigation to ensure early learning and the second a longer full-scale public inquiry. These should have a broad scope, including civil service and general government decision making capacity and the balance of responsibility between central and local government.

Recommendation 1B: To clarify and strengthen mechanisms for coordination of preparedness and planning efforts at multiple levels, including between UK constituent countries, national to local government, and the NHS and social care.

Recommendation 1C: To enhance public health capacity and value across government and the health and care system. This should include:

- Ensuring national level responsibility for the remit of public health beyond health protection.
- Clarification of the scope and function of the proposed National Institute for Health Protection in England
- Increased investment and further integration with the NHS and social care at national and local level.



## 3. Domain 2: Health System Financing

### 3.1 Resource Allocation

HM Treasury conducts spending reviews every two to five years which detail government plans for public spending. Allocations to the health and care sector, like other sectors such as education and defence, is typically negotiated with ministries. It is HM Treasury's responsibility to manage these competing demands, and to take account of the broader economic benefits of health to society. The underlying assumptions which drive these decisions are not always clear and often suffer from short-termism, this has led to calls to greater transparency and independent analysis of the implications of health spending on the economy, and more broadly spending on other sectors on the social determinants of health.(29-31)

HM Treasury's Summer Economic Update stated that a total of £31.9 billion additional funding has been approved for health services in response to the COVID-19 pandemic (see Table 2 for detail).(32) In total, the Office for Budget Responsibility (OBR) estimates that the cost of policy interventions to combat COVID-19, including support to individuals and businesses through, furloughing, grants and loans during the pandemic is around £190 billion.(33) When taking account of the potential economic impact of COVID-19, the OBR's central scenario estimates that government borrowing will reach just under £400 billion in 2020-21.(33)

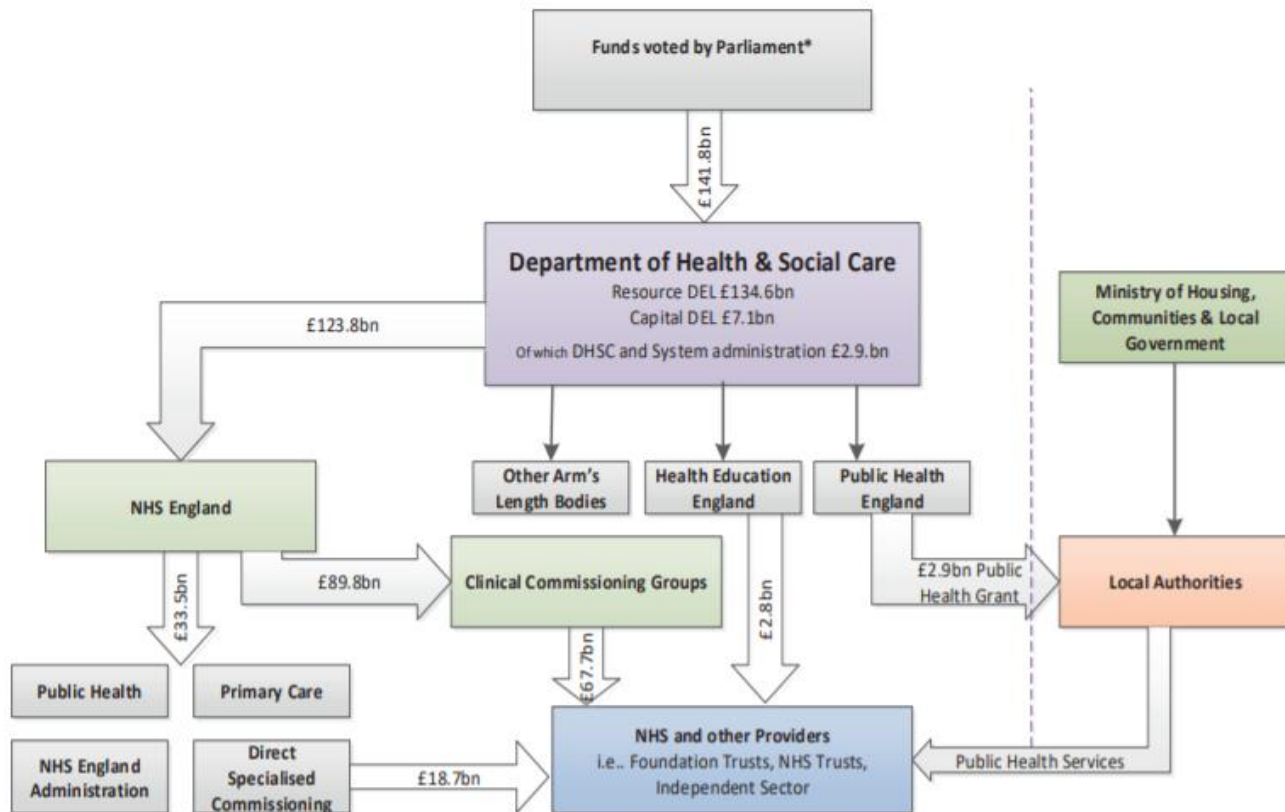
**Table 2: Breakdown of additional spend (HM Treasury's Summer Economic Update 2020)**

Area of additional spend	£ (billions)
Personal Protective Equipment	15
Test, Trace and Contain and Enable programme	10
Procurement of additional ventilators	1
Other, including: use of independent sector facilities; funding for vaccine research and development and; delivery of medicines to those shielding	5.5

Once funding has been allocated to the DHSC, it is allocated to various health system functions (

**Figure 2).** Since 2010, NHS front-line services have been protected from real-term cuts to services, whereas other aspects of the health system including public health, clinical training, capital, and research and development have experienced real-term cuts in spending.(34)

Figure 2: Flow of funding in the health and care system, 2019-20 (Budgeted Position)



Source: Department of Health and Social Care Annual Report and Accounts 2019-20. (35)

### 3.2 Sufficiency, stability and flexibility

NHS England and NHS Improvement monitors the financial and operational performance of CCGs and the provider sector, including acute, ambulance, community, mental health and specialist NHS services. They produce quarterly reports on deficits, employee costs, non-pay costs pressures, efficiency savings, productivity, and capital expenditure.(36) CCGs have a statutory requirement to not overspend their allocated budget, which acts as an incentive to manage annual growth in demand for healthcare activity. NHS hospitals are incentivised to be financially sustainable to achieve or retain foundation status, which affords the hospital a degree of autonomy in decision-making. They are also reimbursed according to set unit prices, NHS tariffs, which incentivises them to reduce their unit costs. Cost containment is primarily achieved either explicitly through adjustments to tariff prices, or more implicitly through adjustments to budgets allocated to CCGs. The annual uplift for both prices and budgets is decided by NHS England and NHS Improvement and takes account of inflation and an “efficiency factor”, which is intended to reflect potential for efficiency savings. Between 2010 and 2016, this “efficiency” factor was weighted in a manner that cut NHS tariff prices by 4% in real terms, per annum.(37) This contributed to 66% of NHS trusts producing a deficit in 2015/16.(38) The NHS Provider Sustainability Fund, £2.45 billion in 2018/19, was developed to provide additional funding to reduce these deficits, and is distributed to NHS providers which agree and deliver on targets for financial and operational performance.(39) The proportion of trusts in deficit has decreased, but still just under half of NHS trusts produced a deficit in 2018/19.(38)

Under some circumstances, hospitals will receive bailouts from the government. A recent, high profile example was the announcement in April 2020 that the government intends to write off £13.4 billion of debt from over a 100 hospitals.(40) This write-off has been achieved by converting loans to equity (public dividend capital) and will still require these hospitals to pay an annual charge to the DHSC. Other bailouts in the previous decade have been attached to conditions such as delivering annual productivity savings, and meeting targets related

to waiting times and other performance measures.(41) The COVID-19 pandemic has emphasised how growing deficits discouraged hospitals to invest in maintenance and longer-term infrastructure improvements. This in turn exacerbated being under-resourced in terms of hospital beds and critical care capacity (see Domain 5).

In terms of financial planning, NHS England and NHS Improvement produce their own financial projections but these are not routinely published publicly. They are informed by periodic reviews of the potential for efficiency savings from NHS providers that influence resource allocation. As staffing accounts for around 60% of healthcare costs, decisions by the NHS Pay Review Body have significant implications for future healthcare spending. Outside of the NHS, independent policy institutes produce financial projections intended to influence policy. (42-44)

Approximately 5% of the NHS budget is allocated for capital spending to maintain and invest in the NHS estate. However, the UK spends relatively less on capital in healthcare as a percentage of GDP when compared to other OECD countries.(45) This trend has been driven by NHS hospitals raiding capital budgets to address revenue pressures. Between 2014-15 to 2018-19 it is estimated that £4.3 billion of capital funding has been re-allocated.(46) In 2018-19 it was estimated that cost of the backlog of maintenance and repairs to NHS buildings and facilities was £6.5 billion, with £3.4 billion of that being considered as high-risk to the safety of patients and staff.(46) There is also significant inconsistency in approach to capital management between hospital trusts, with many hospitals reporting minimal maintenance backlogs and some hospitals reporting maintenance backlogs of over £100 million. Taking advantage of this variation, there is potential for hospitals to share expertise in capital planning and management, including building business cases for increased investment.(47) There is also an important role for NHS England to promote good practice, share scarce expertise, and commission research to fill gaps in knowledge.(48)

### 3.3 Coverage and fair financing

Several out-of-pocket payments to access NHS services exist including, prescription costs, dental costs, eye-care costs, healthcare travel costs, and wigs and fabric supports. Prescription charges are £9.15 per item, however patients can purchase a pre-payment certificate to cover all prescriptions for £105.90 per 12 months.(49) Charges for accessing dental care vary according to complexity of treatment. For example, a scale and polish costs £22.70, whereas crowns, dentures, or bridges cost £269.30.(50)

However, because of many exemptions to paying these charges (see Table 3), the UK has some of lowest level of catastrophic health spending in the world.(51) Collectively prescription and dental user charges account for just over 1% (around £1.4 billion in 2018/19)(52, 53) of the total budget for NHS England.(34)

**Table 3: Exemptions from prescription and dental charges**

	Individuals exempt
<b>Dental</b>	<ul style="list-style-type: none"> <li>▪ Pregnant women</li> <li>▪ Under 18</li> <li>▪ Under 19 and in full-time education</li> <li>▪ Unemployed</li> <li>▪ Low household income and receiving tax Child Tax Credit or Working Tax Credit (54)</li> </ul>
<b>Prescription</b>	<ul style="list-style-type: none"> <li>▪ Under 16</li> <li>▪ Between 16 and 18 and in full-time education</li> <li>▪ Above 60</li> <li>▪ Eligible diagnoses including cancer, diabetes, epilepsy, hypothyroidism</li> <li>▪ Unemployed</li> <li>▪ Low household income and receiving tax Child Tax Credit or Working Tax Credit (54)</li> </ul>

### 3.4 Paying providers

The predominant form of payment for secondary care providers is case based payment in the NHS tariff system which consists of several thousand healthcare resource groups (HRGs), which are prospective payments for different types of patients and/or procedures.(55) While this has incentivised activity, some have argued it has provided less incentives for the integration of care and prevention of poor health.(55) (56) Increasingly NHS England is supporting moves towards block contracts for some services, and internationally certain countries have been experimenting with bundled payments for care episodes as a mechanism to encourage joint working between different aspects of the healthcare system.(57) It is recognised that HRGs may not adequately reflect the costs of providing specialist care for complex patients, in response a system of top-up payments has been developed.<sup>28</sup> Best Practice Tariffs (BPTs) incentivise quality improvement and adherence to national targets across a series of clinical areas such as acute stroke care, myocardial infarction, heart failure and major trauma.(58) BPTs are reviewed and refined each year, and progress is monitored through a series of national audits such as the Sentinel Stroke National Audit Programme (SSNAP) database.

The predominant form of payment for primary care providers is risk adjusted capitation, although there is fee for service arrangements for immunisation programmes and additional services such as minor surgery or family planning.(59) Approximately 10% of the income of primary care providers is accounted for by the quality outcomes framework (QOF), which is a pay for performance programme used to incentivise actions to optimise treatment for a number of clinical conditions such as chronic kidney disease, heart failure, and hypertension.(60) QOF also includes indicators related to public health, prescribing and end of life care.

The Commissioning for Quality and Innovation (CQUIN) programme makes a proportion of a NHS provider income contingent upon meeting a series of quality indicator across four key areas; prevention of ill health, mental health, patient safety, and best practice pathways.(61) The scheme covers NHS providers across acute care, mental health, primary care, and specialised services. The value of CQUIN has historically been 2.5% of the total contract value, but from 2019/20 onwards this has been reduced to 1.25%.(61)

### 3.5 Recommendations

Recommendation 2A: To establish an independent authority responsible for building capacity in and routinely publishing projections of health and care spending, estimations of resource needs for capital and workforce, and analyses of the economic benefits of health to society.

Recommendation 2B: For any future efficiency drives at both national, local, and organisational level to take a long-term perspective, to avoid the unintended consequences of targeting short-term efficiency gains such as reduced capital investment.

Recommendation 2C: For NHS England and NHS Improvement to establish a series of regional expert hubs for capital management to share skills and expertise between hospital trusts on building business cases for investment and overseeing capital projects .

Recommendation 2D: To reform the payment system to ensure it is aligned with the broader objectives of the health system such as supporting integration and prevention, including greater experimentation and evaluation of reimbursement mechanisms which can promote population health while still retaining mechanisms to promote efficiency, responsiveness and quality.

## 4. Domain 3: Workforce

Before the COVID-19 pandemic the NHS in England was facing several workforce challenges including significant staffing shortfalls, growing specialism despite acknowledgement a generalist approach is needed to respond to growing multimorbidity, and calls to better protect staff wellbeing.

### 4.1 Workforce numbers

The UK has comparatively fewer practising physicians, nurses and other health professionals (Table 1 Table 4). Shortages have become chronic in some areas with persistently high vacancy levels, particularly for nurses. Anderson et al. (forthcoming) highlight that some areas of staffing have been particularly hard hit over the last decade. Their analysis shows that despite demand increasing, the number of registered nurses per 1,000 population has shown little change in this period and mental health nurses fell in number by 10%. In primary care, the number of GPs declined per 1,000 population whereas hospital consultants increased in number from 2008 to 2018 (Fig 1).(62) Projections of demand and supply indicate that there will be a shortfall of 7,000 GPs by 2023-24.(63) Social care in England was estimated to have 122,000 Full-Time Equivalent vacancies, including 70,000 care workers at the start of the COVID-19 pandemic.(64) Challenges for the social care workforce are compounded further by poor pay and working conditions and high turnover. Around one third of care workers in England are employed on zero-hours contracts meaning no guaranteed income, average hourly pay is lower than comparable pay in most UK supermarkets and there is little job development or differential in pay to gain with experience. (62) The workforce and impact of poor conditions is gendered as 82% (UK-wide) of the adult social care workforce are women.(65) Women and BAME (black and minority ethnic) staff are also more concentrated in the lower pay levels of the NHS workforce. (66, 67)

**Table 4: Key workforce data**

Workforce data		
Workforce category, 2018, UK	Rate (EU 15 mean)	
Practising nurses per 1,000 population	7.8 (9.3)	
Practising physicians per 1,000 population	3.0 (3.7)	
Practising dentists per 1,000 population	0.5 (0.7)	
Practising pharmacists per 1,000 population	0.9 (0.9)	
Practising physiotherapists per 1,000 population	0.4 (1.3)	
Practising care workers per 1,000 population	16.2 (8.9)	
Percentage of foreign-trained nurses	15.4 (4.2)	
Percentage of foreign-trained physicians	29.2 (15.1)	
Mean annual basic pay (full-time equivalent) / Mean Annual Earnings (per person), by category, 2019-20 (unless stated), England	£ Mean annual basic pay (FTE)	£ Mean annual earnings (before tax)
General Practitioner, partner, (2018/19)		117,300
General Practitioner, salaried (2018/19)		60,600
Consultant	95,826	114,539
Staff grade	59,731	66,229
Foundation Doctor Year 1/2	27,503/31,905	34,539/41,903



Nurses & health visitors	33,559	33,723
Midwives	35,290	33,640
Ambulance staff	32,165	41,565
Support to clinical staff	20,687	20,233
National Living Wage*	16,010**	
<b>Vacancy rates, 2020/21, quarter 1 data unless otherwise stated, England</b>		
Total workforce vacancy FTE	83,031	
Total workforce % vacancy rate (range by region low-high)	6.6 (4.7 - 9.2)	
Nursing vacancy, FTE	37,185	
Nursing % vacancy rate (range by region low-high)	10.1 (6.8-12.8)	
Medical vacancy, FTE	7,294	
Medical % vacancy rate (range by region low-high)	5.9 (2.7-8.4)	
<b>Absenteeism, England</b>	<b>Sickness absence rates, %, Apr – Jun 2020 (same quarter 2019)</b>	
All groups	4.98	
Doctors (hospital and community health services)***	2.04 (1.31)	
Nurses & health visitors	5.84 (4.41)	
Midwives	4.80 (4.79)	
Ambulance staff	5.45 (5.12)	
Support to clinical staff	6.66 (5.65)	

\* Applicable to those aged 25 and over.

\*\* Based on £8.21 (2019-20) and 37.5 hours a week for 52 weeks.

\*\*\* Doctor sickness absence is recognised to be chronically underreported.

Note: Source data provides further detail to all of the summary categories in this table

Sources: (68-71)

## 4.2 Nature of workforce: increasing specialism

As well as workforce shortages, there has been increasing awareness and concern that the health and care workforce in the UK is not well suited to meet the needs of an ageing population experiencing an increasing burden of ill health from multiple long-term conditions. In addition to the increase in hospital consultants in comparison to GPs (above) there has been an increasing shift towards specialism and sub-specialism among doctors in the past few decades. This has led to concerns regarding the sustainability of primary care and a decrease in generalist specialisms such as internal medicine within secondary care. The tension of disease focused specialism against the holistic and generalist needs of the population has increased over the past decade. The lack of generalists or specialists with generalist skills able to contribute to acute medicine and geriatric care in district and smaller hospitals creates particular challenges.(72) More recently the debate has

turned from specialism vs generalism to one of augmenting the generalist skills of specialists with a vision for 'T-shaped' professionals with both breadth and depth in expertise.(73)

### 4.3 Staff wellbeing

Concern about staff wellbeing and morale has increased in the last decade. The 2019 NHS Staff Survey showed that two fifths (40.3%) of responding staff reported feeling unwell as a result of work-related stress in the past 12 months and less than one third felt that their trust definitely takes positive action on health and wellbeing. With regards to sustainability and retention, over a quarter (28.4%) reported often thinking about leaving their organisations and 1 in 5 (21.0%) felt that they would look for job in the next 12 months.(74) Mental health issues and suicides are high among healthcare workers(75) and a lack of emotional and psychological support available to staff has been highlighted.

### 4.4 Responses to workforce challenges and workforce planning

Underpinning all of the challenges in workforce in England has been poor workforce planning. Workforce planning is fragmented, localised and not sufficiently responsive to changing needs.(62) The model has been heavily tied around education and training places and has sought to bring professionals into the workforce at a rate to compensate those leaving. Planning has historically based on the NHS exclusively rather than including social care and has lacked sophistication in trying to combine supply and demand-based factors. In the absence of good planning and clear workforce strategy, a number of responses have been made to address workforce shortages:

- The NHS and social care have a high reliance on foreign staff. Around 30% and 15% of physicians and nurses respectively are foreign trained. For the first time the General Medical Council reported that more non-UK trained doctors had joined the register than UK graduates.(76)
- Reliance on temporary staff to the extent that in 2018-19 spending on temporary staff accounted for 6% of total NHS staff costs.(62)
- Changes in skill-mix. The NHS has been proactive in experimenting in adapting skills mix and task-shifting through role enhancement, substitution, delegation and innovation (see Table 5 and workforce case study).
- Enhanced workforce initiatives in areas facing acute challenges through for example bursaries or salary benefits.(62) Having earlier scrapped bursaries for nursing, from 2020 student nurses will receive at least £5,000 per year (with up to £3,000 further depending on area of nursing and geography).(77)
- Increasing numbers of training places. In 2018 the number of medical school places increased by 25% (analysis of demand and supply suggests numbers may need to double)(78) and in 2020, during the pandemic, the cap on places was lifted.

The responses have often had to be largely in reaction to problems rather than forward looking. The failures of workforce planning and strategy coherence have limited the extent to which proposed innovation around workforce has been able to be implemented at scale.(79) The NHS Long Term Plan and Interim People Plans sets out ambitions for increased recruitment and training places and improved workplaces for staff.(3, 80) Analysis suggests that funding for Health Education England (leadership organisation for education, training and workforce development), which has been falling relative to NHS funding, will need to be restored in real-terms to 2013/14 levels requiring an increase of £900million in 2023/24.(63)

#### Table 5: Examples of changes in skill-mix deployed in the NHS in England

Type of skills-mix change(81)	Examples from the NHS in England	Intended benefit
<b>Enhancement</b>	Clinical pharmacist roles across primary care.(82)	To give clinical pharmacists greater role in management of long-term conditions, e.g. undertaking medical reviews for long-term patients.  Enhancement of role and frees up capacity from wider primary care team, particularly GPs
<b>Substitution</b>	Primary care networks - teams of primary care professionals working with populations of around 30,000 to 50,000 people.(83)	Clinical staff are complimented by a larger number of other team members – such as allied health professionals, physician associates, and a range of innovative new roles. This shift has helped ensure those with specific experience and knowledge are available to patients, and that more health professionals can work at the top of their license.
<b>Innovation</b>	Social Prescribing Link Workers in primary care.(84)	Social prescribers have responsibility for facilitating access to non-clinical services – releasing work from General Practitioners and other primary care practitioners.  If implemented well, can have a positive impact on service user’s quality of life and wellbeing.(85)
<b>Delegation</b>	Delegation from nurses to Health Care Assistants (86) and more recently the creation of Nursing Associate role (to bridge the gap and formalise delegation).(87)	To allow nurses to have more capacity to act at the top of their licence.(87)

## 4.5 Response to COVID -19

The NHS workforce acted with speed and has demonstrated flexibility and innovation through the COVID-19 response.(62)

- Many staff were redeployed to unfamiliar areas
- Thousands of healthcare staff came out of retirement
- Final year medical and nursing students were fast-tracked to be able to contribute and increase workforce capacity
- Staff across the workforce have worked in new ways, including with greater collaboration between primary and secondary care
- Hundreds of thousands of people registered as volunteers to help the COVID-19 response

Case Study 2 considers in more detail the learning from task-shifting during COVID-19. This was facilitated by reductions in bureaucracy around staff deployment to increase flexibility and reassurance from regulators that any subsequent investigations of clinical error would take account of the unprecedented challenged created by the pandemic.

In making such a response health and care staff have placed themselves at considerable risk. Analysis indicates that 1 in 10 COVID-19 infections in England have been experienced by frontline health and social care workers.(88) Linkage of UK Biobank data with COVID-19 test data shows that, relative to non-essential workers, health and social care staff have a higher risk of severe COVID-19 with medical support, social care and transport staff being at greatest risk.(89) Analysis has also shown health and social care workers to have higher rates of death involving COVID-19 compared to the population as a whole. (90, 91) By September 2020 more than 600 health and social care workers were thought to have died with COVID-19 across England, Scotland and Wales.(92) This has emphasised existing racial inequalities with Black, Asian and minority ethnic people being disproportionately affected by coronavirus.(93) A review process has been put in place by the DHSC for medical examiners to scrutinise deaths of health and social care workers partly to ascertain whether COVID could have been acquired in the workplace.(94)

While the workforce has demonstrated considerable resilience the existing pressures highlighted above have become more acute. Staff wellbeing and burnout is major concern,(26, 95, 96) (96, 97)And the need for a systemic approach to ensure staff wellbeing and retention has been argued for rather than relying on the resilience of individuals.(93) (93, 98)In the context of existing projections of staff shortfalls and the unknown impacts of Brexit, there is a need to try and ensure retention of those who returned during COVID-19 and all staff and to reduce barriers to flexibility in the long-term. More fundamentally pay, conditions and career prospects have to improve for care workers and workforce planning must encompass health and social care. Already announcements to provide free visa extension for health workers do not apply to social care staff.(99)

## 4.6 Recommendations

Recommendation 3A: To protect the physical and mental wellbeing of health and social care staff during and beyond the pandemic, through investment in increased access to psychological support services and improving working environments to reduce stress and sustain motivation.

Recommendation 3B: As part of efforts to reform the social care funding system, to commit to improving terms and conditions in the social care workforce, with a focus on achieving parity with the NHS, with improved remuneration, ensuring at least a living wage, pay banding, contracting and career progression.

Recommendation 3C: To strengthen workforce planning and consideration of workforce flexibility and skills-mix. This should include:

- An increase in funding to Health Education England for workforce development.
- The promotion of generalist skills across the health and care workforce required to manage an increasingly multimorbid population, through increased investment in primary care and the development of generalist skills in secondary care.
- A strategy, to identify and embed new learnings around workforce flexibility and ensure skills gained during the pandemic are not lost. To be developed by professional regulators and Health Education England.

Please see our case study on skill mix for further recommendations.

## 5. Case Study 1: Using skill mix in response to the COVID-19 pandemic

### **Context**

Adaptation of skill-mix in the health and care workforce is seen as one way to deliver a sustainable workforce that meets the changing health and care needs in England.(3, 100) The NHS in the UK has a long history of embarking on different initiatives that facilitate adaptation of skill-mix (see Domain 3 and Table 5).

While there have been successes, there have also been challenges. Some roles have been systematically used below their capabilities – including non-medical prescribers. Elsewhere, internal NHS barriers and an often, informal approach to skill development has created friction. For example, skills may not be recognised between primary care and secondary care, or even between different trusts and hospitals.

Most concerningly, skill mix can be perceived as mechanism to actively reduce headcount or cost. Reactions to policy have often been more negative when skill mix is used in an overly mechanical fashion – reducing skilled roles to ‘countable’ tasks (88) – or to constrain costs through practices like ‘down banding’(the systematic process of hiring staff at below the usual NHS pay band) (101). As such, healthcare professionals and patients sometimes remain understandably uneasy about the skill mix agenda.(102, 103)

### **Goal**

When Covid-19 hit, the government used skill-mix and existing workforce flexibility to generate surge workforce capacity in England’s NHS.

### **Relevant Domains**

- Domain 3: Workforce

### **The Case**

Changes in skill mix was one way the country looked to build surge capacity during Covid-19. On March 17<sup>th</sup>, a letter from NHS England announced a full assessment of nurses, midwives and Allied Health Professionals with the skills to be moved to frontline roles. Thereafter, the April 2020 strategy COVID-19: Deploying out People Safely confirmed plans to maximise acute capacity by redeploying staff on the basis of ‘transferable skills’ – including deployment of healthcare scientists as health managers, nurses and midwives as critical care support, and GP trainees as part of acute clinical teams.

Safe staffing ratios were changed to provide capacity – in this case, by reducing the skill mix in teams, to enable more capacity. For example, in Intensive Care Units (ICUs), the critical care nurse-to-patient ratio recommendation moved from 1:1 to 1:6 – with an expectation that critical care nurses would be supported by non-specialist nurses and healthcare assistants. This was facilitated by a significant easing of regulations by the workforce regulators as well as significant upskilling of non-ICU nurses with critical care skills.(104) There may be opportunities to embed the benefits of increased flexibility and skill in years to come.

In primary care, the development of primary care networks proved a foundation for the pandemic response. Greater use of multidisciplinary teams, with some staff members shared across primary care networks, were utilised to allow the continuation of services at a time when primary care was struggling with significant workforce shortfalls that were exacerbated by a significant proportion of the primary care workforce being deemed as 'high-risk', and therefore not expected to engage in face-to-face patient contact. Full analysis is needed to establish to what extent, this involved the substitution of tasks between GPs, nurses, and allied health professionals.

A multi-skilled and flexible workforce did not just create capacity in clinical settings. It also enabled clinical support and capacity for medical research and clinical trials. NHS Trusts were asked to prioritise studies approved by UK Chief Medical Officers, as part of the 'research' section of the country's Covid-19 strategy. Clinical research nurses and midwives were deployed to support those efforts. By October 2020, over 130,000 UK patients had participated in urgent public health research – with clinical research staff an important enabler.(105)

### **Analysis**

The capacity of the NHS in England was not exceeded in the first wave of Covid-19, as initially feared. Redeployment provided a clear contribution to that end. One clear success was the maintenance of capacity in ICUs – a key area of concern at the beginning of the pandemic. This would not have been possible if staff: patient ratios had not been maintained ahead of the pandemic, or if the nursing workforce (amongst others) had a more limited range of transferable skills.

While ratios and staff substitution constitute a change in skill mix, in this case an imaginative and flexible approach to the crisis, there is concern that this extreme change in staffing ratios compromised safety and left many working beyond their licence, rather than at the top of it. Fortunately, such dramatic shifts in critical care nursing-to-patient ratios were never required. The second wave guidance significantly changed the recommended ratio from 1:6 to 1:2 – a tacit admission that the former went too far. Moreover, the psychological strain of working in higher stress, less safe environments on frontline workers has been documented – both during Covid-19, and pandemics before it.(96)

However, there is emerging evidence that those who experienced redeployment feel confident in new skills. For example, one survey of surgical trainees redeployed to A&E found most had gained competencies.(106) From a nursing perspective, if non-specialist nurses can maintain and apply the critical care skills developed when redeployed to ICU to their normal working environments, this may improve their capabilities and confidence in managing unwell patients. In primary care, it is possible the pandemic has empowered many nurse and allied health professionals, therefore accelerating nationally led efforts to adapt skill-mix in primary care to better meet patient demand. It is important that post pandemic new skills are not lost, and that the NHS does not revert to the status quo.

It is important to recognise that workforce flexibility is not an adequate replacement for a fully resourced health and care system. Entering the Covid-19 pandemic, the NHS and social care had significant workforce shortages (see Domain 3), which skill-mix could not address. For example, while the NHS was able to provide surge capacity beds at relatively short notice, through the development of Nightingale hospitals, it proved much harder to staff those beds.(107) In social care, adapting skill-mix is not an effective policy response in a sector with the most severe shortfalls in low-paid, people-facing caring roles, where almost no scope for substitution exists. In these circumstances, improving terms and conditions of employment is the only viable and sustainable option to addressing shortfalls (see Recommendation 3B). Redeployment has also been more challenging to sustain in subsequent phases of the pandemic as, unlike the initial wave, elective care and other services have continued.



### ***Recommendations***

Recommendation 3D: The National Institute for Health Protection should publish a workforce plan including staff skills mix as part of future preparedness and planning, with a pragmatic account of how much capacity workforce flexibility can create.

Recommendation 3E: To develop the use of skill passports to promote standardisation of training and skill portability across regions and organisations, as part of wider efforts to implement competency based training as a model for continuing professional development.

Recommendation 3F: The National Institute for Health and Care Excellence (NICE) should take stock of learning during the pandemic, to consider recommendations for what more flexible safe staffing should look like during severe demand spikes, to ensure an evidence-based approach is available in future health shocks.

### ***Limitations***

England's experience with adapting skill-mix during the pandemic is context-specific. Extrapolation of learning to other countries with different workforce compositions may not be straightforward. The NHS can implement initiatives such as the aforementioned "COVID-19: Deploying out People Safely" strategy using a top-down approach, whereas other healthcare systems may need to be more reliant on locally driven innovation.

## 6. Domain 4: Medicines and technology

### 6.1 Adoption of health technologies

The National Institute for Health and Care Excellence (NICE) is responsible for undertaking economic evaluation of most new medical technologies and providing recommendations for approval. From a regulatory perspective, prior to Brexit, the European Medicines Agency (EMA) was responsible for assessing the safety of novel pharmaceuticals launched in the UK through a process called the centralised authorisation procedure. This historically involved close collaboration between the EMA, previously located in London, and the UK's Medicines and Healthcare products Regulatory Agency (MHRA). Post Brexit, the MHRA will undertake this task, although it has been recently announced that the MHRA will recognise EMA decisions for two years at the end of the Brexit transition period.(108) To prepare for the end of this arrangement, it is important that the MHRA receives adequate investment to expand capacity in assessing novel pharmaceuticals independent of the EMA to avoid introducing unnecessary delays in access to new treatments. In December 2020, the MHRA became the first regulatory body in the western world to approve the use of a COVID-19 vaccine.(109) The UK utilised legislation predating Brexit, which allows the MHRA to give temporary approval for unlicensed medicines in the case of a public health threat such as pandemic. (109)

**Table 6: Cost per quality-adjusted life-year (QALY) thresholds used by the National Institute for Health and Care Excellence (NICE)**

Category of treatment	Cost per quality-adjusted life-year (QALY) threshold
Routine	£20,000 - £30,000
End-of-life*	£50,000 (110)
Highly Specialised Technologies**	£300,000 (111)

\* Treatments that add more than 3 months to the life expectancy of patients having no more than 2 months to live.

\*\* For small populations and rare conditions.

Since foundation, NICE has used an incremental cost per quality-adjusted life-year (QALY) threshold, set at £20,000 to £30,000 per QALY, to guide its decisions (Table 6). There are limitations to this approach, and many argue that QALYs do not capture all the relevant external benefits from therapy, such as the costs borne by (informal) carers, the value of scientific spill-overs leading to other innovations, or broader effects on the economy in terms of production. Another major drawback of the QALY approach is that it does not consider the pre-treatment level of patients,(112) therefore this approach may favour those with more treatable conditions and greater capacity to benefit. Potentially in acknowledgement of some of these limitations, NICE does vary its threshold in certain circumstances such as for end-of-life treatments, and for highly specialised technologies (Table 6). The baseline cost per QALY threshold of £20,000 to £30,000, set in 1999, has controversially not increased with inflation. International analysis has indicated the UK's threshold is lower than those proposed in many other high-income countries such as in the United States, or Canada, the Netherlands and Ireland.(113) (114)(115)

The expected timeline is between 40 and 49 weeks for NICE's single technology appraisal process,(116) and 60 weeks for the multiple technology appraisal process.(117) Fast track appraisal, when the technology's incremental cost effectiveness ratio (ICER) is likely to be less than £10,000 per QALY, is only 32 weeks.(118) An analysis of cancer drugs approved by the European Medicines Agency (EMA) between 2009 and 2016 found that the average time between EMA authorisation and NICE final appraisal determination was 2 years (an improvement from 3.1 years between 2000-08).(119) Once NICE has made a recommendation, there is a mandatory requirement for CCGs to facilitate access to the new treatment within a 90-day period, subject to a caveat on budget impact. When the projected budget impact exceeds £20 million per annum, a discussion is triggered between NHS England and the manufacturer.(111) Both parties typically negotiate prices and

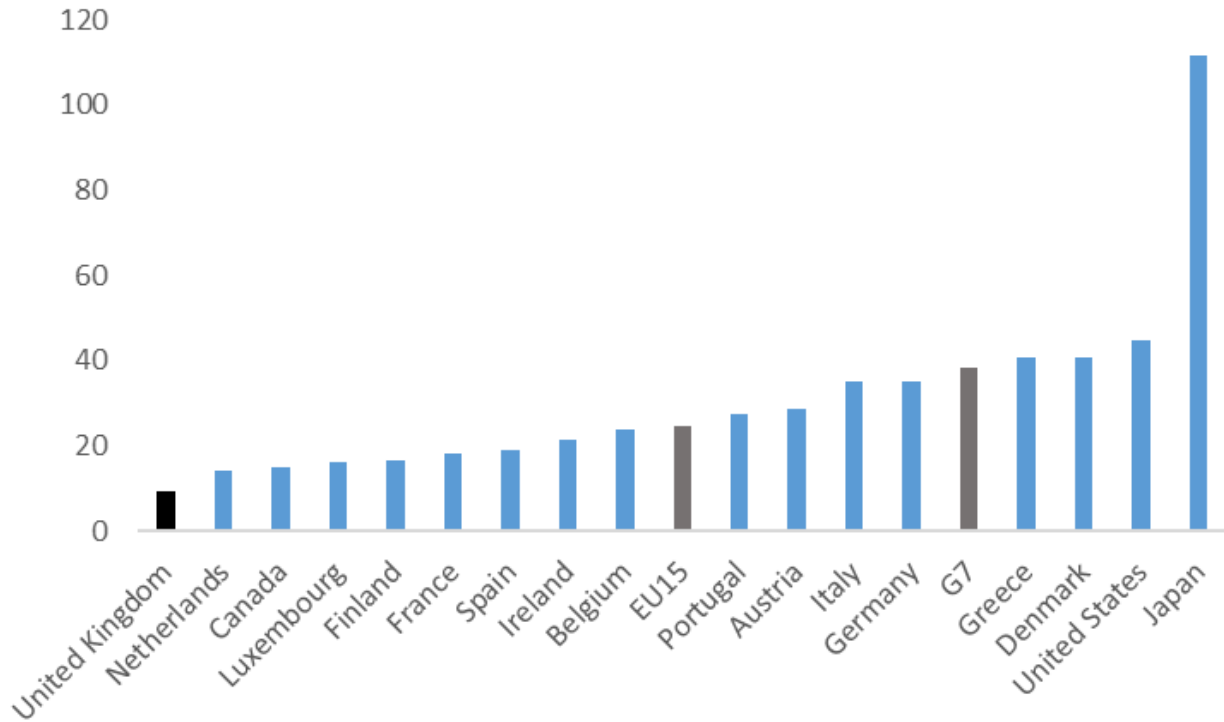
alternative payment systems for the new technology that will minimise the acute financial impact on NHS providers. In some circumstances, a phased introduction of the new technology may be necessary.(120)

For novel cancer drugs, the UK has developed the Cancer Drugs Fund (CDF). In the first phase of the CDF, between 2010 and 2016, over £1.2bn was invested to pay for cancer drugs without a mandatory commitment to monitor long-term outcomes or re-negotiate prices at a later date.(121) The CDF has since been reformed to develop a process of managed access agreements whereby reimbursement is conditional on real-world outcomes being monitored using the NHS England Systemic Anti-Cancer Therapy dataset (SACT).(122) All drugs previously available under the first phase of the CDF have since been reassessed by NICE.

For high-cost technologies which are not pharmaceuticals (e.g. diagnostics or medical devices), adoption is more dependent on capital funding available at the local level. As discussed in Domain 2, NHS hospitals have frequently resorted to transferring capital budgets to address revenue pressures. This has contributed, in part, to the UK having low stocks of CT and MRI scanners when compared to other high income countries (Figure 3,

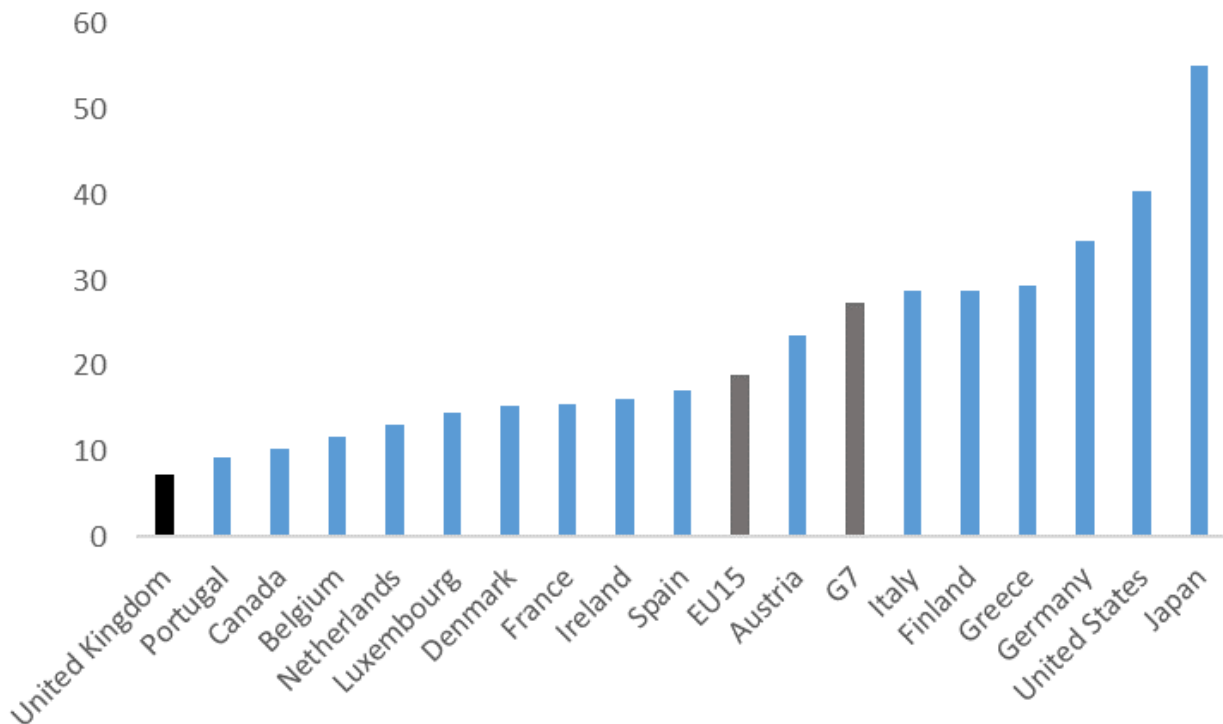
Figure 4). A recent review of diagnostic capacity in the NHS has called for a rapid expansion in diagnostic capacity to respond to the challenges of rising waiting times to access diagnostics and delayed diagnosis created by patients being less likely to seek medical care during the COVID-19 pandemic.(123)

**Figure 3: Number of CT scanners per million people, 2019 or latest available data**



Source: OECD data (69)

**Figure 4: (87) Number of MRI scanners per million people, 2019 or latest available**



Source: OECD data (69)

## 6.2 Disinvestment in ‘low-value’ health technologies

England has developed several initiatives to disinvest in low-value care, defined as care which has limited evidence of clinical and/or cost-effectiveness. NICE clinical guidance incorporates recommendations for disinvestment.(124) NHS England has developed the NHS RightCare programme which uses nationally collected data to work with local stakeholders to diagnose, develop and deliver solutions to address unwarranted clinical variation.(125)The Getting It Right First Time (GIRFT) programme is a clinician led specialty-based programme which undertakes reviews of individual hospitals to provide recommendations that aim to improve quality of care, as well as delivering efficiencies such as the reduction of unnecessary procedures and cost savings.(126) Internationally, the Choosing Wisely initiative has gained momentum, which has produced a series of recommendations for disinvestment following consultation with professional organisations.(127) These recommendations have fed into the NHS England Evidence Based Interventions (EBI) programme, the first phase of which identified 17 ‘low-value’ elective procedures for disinvestment, launched in April 2019.(128) Implementation of the programme is supported with resources for patients and clinicians including information leaflets and videos, and progress is monitored through a publicly available dashboard. Disinvestment in low-value care has also gained traction in other UK countries, as part of the Realistic Medicine initiative in Scotland,(129) and the Prudent Healthcare initiative in Wales.(130)

## 6.3 Health Information Technology

The use of health information technology (HIT) systems varies across different sectors. There are well developed electronic health record (EHR) systems in primary care, provided predominantly by three major system suppliers.(131) In secondary care a broader variety of EHR systems exists, sometimes even in the same hospital, each with different functionalities and limited scope for interoperability. Many hospitals still rely on paper notes, particularly in the outpatient setting. Previous centrally driven attempts to strengthen HIT in the NHS have had mixed results. The National Programme for IT failed to achieve many of its stated objectives,

with unrealistic deadlines and a failure to be responsive to local needs cited as key barriers to implementation.(132, 133) More recent endeavours to strengthen HIT have focused on balancing top-down and bottom-up implementation. The NHS Long Term Plan emphasizes the potential of improving interoperability of pre-existing EHR systems and linking data at the local level, with the objective that by 2024, both patients and healthcare professionals will be able to access a “Local Health and Care Record”.(3) Funding continues to be an issue. A recent report by the National Audit Office concluded that recent investments in digital transformation have not been sufficient to deliver national ambitions.(134) NHS England and NHS Improvement have estimated that it will require £8.1 billion in funding to achieve their objects for digital transformation, however it is not clear to what degree this budget is based on cost data or pre-existing progress at the local level. At the local level, it is estimated that 2% of NHS hospitals expenditure is on HIT, compared to a recommended 5%.(134)

The NHS Long Term Plan also includes a commitment that, by 2024, every patient will be able to access primary care services digitally, and where appropriate access a ‘virtual’ consultation.(3) However, the COVID-19 pandemic has accelerated progress significantly (see Case Study 2). In the matter of a few weeks, there was rapid increased uptake of remote teleconsultation in primary care to limit the transmission of coronavirus and allow the continuation of services whereby patients were triaged by telephone or a structured online form to either a video, telephone or face-to-face consultation.(118) Similar changes occurred in secondary care, with many outpatient appointments being conducted remotely.(135) There have been concerns that increasing use of remote consultations could led to unintended consequences such as exacerbating digital exclusion of vulnerable groups,(136) delaying diagnosis of conditions such as cancer,(137) or threatening the financial sustainability of primary care services.(138) Pre-existing policy responses to these issues that predate the pandemic include investing in the Widening Digital Participation (WDP) programme,(139) and readjustment to the GP reimbursement formula.(140) The implications of remote consultations are discussed further within Case Study 2.

## 6.4 Research and development

A report by the UK Clinical Research Collaboration estimated that, in 2018, taking account of all public, charitable, and private spending, £8.64 billion was spent on health-related research, which is 25% of the UK’s total expenditure of research and development (R&D), £34.8 billion in 2018.(141) £4.3 billion of this £8.6 billion is accounted for by the pharmaceutical private sector. Of the remaining public/charitable expenditure, 21.7% is spent on either treatment development or evaluation.

As of 2016, the UK employs 63,000 people in the pharmaceutical industry, with 23,000 of these dedicated to research and development.(142) The number of pharmaceutical companies operating in the UK has increased from just below 400 in 2008 to just above 600 in 2018.(143) A review of the changing UK drug discovery landscape produced mixed findings.(144) Large pharmaceutical companies, which account for around 75% of total employment in the sector, have been significantly decreasing their employment in drug discovery in the UK. Whereas many small and medium size pharmaceutical companies have been increasing employment in drug discovery.

## 6.5 Security of supply

The NHS Supply Chain is responsible for the procurement, storage, and dissemination of the UK’s stockpile of emergency health supplies. Analysis of the DHSC annual accounts has suggested that the impact of several efficiency reviews led to the value of this stockpile decreasing from around £800 million in 2013 to £506 million in 2019.(145) It quickly become apparent during the offset of the pandemic that pre-existing stockpiles of PPE were not sufficient, sometimes out of date,(146) and did not include essential items such as fluid repellent gowns.(147) The response by NHS Supply Chain and the government has been characterised as slow and confused, involving shifting guidance, outsourcing to private companies, and long supply chains.(147, 148) Some NHS hospitals resorted to procuring PPE independently after losing confidence with the centralised system.(149)



The UK experienced significant shortages of other vital medical supplies during the COVID-19 pandemic. For example, shortage of reagents required for COVID-19 diagnostic tests were experienced throughout the pandemic, similar to many other countries.(150) There were also concerns, ultimately unrealised, that the UK would face a shortage of ventilators.(151) At the peak of the pandemic other shortages included anaesthetic agents, and medical oxygen.(152) The NHS also faced challenges procuring some drugs for chronic disease such as epilepsy, and depression.(153)

## **6.6 Recommendations**

Recommendation 4A: To regularly monitor and publish prescribing data on access to and security of supply of medications, to ensure there is a system in place to stockpile necessary medications and respond to the risks in this area.

Recommendation 4B: For NHS England to commit to international benchmarking of uptake of medicines, diagnostics and health information technology against other comparable high-income countries.

Recommendation 4C: For NHS England and NHS X to ensure that local areas have developed and published a plausible implementation plan outlining the necessary steps and resources required to achieve a functioning and interoperable “Local Health Care Record”.

Recommendation 4D: For NHS England and NHS Improvement to allocate a budget to achieving its digital ambitions based upon a published cost impact assessment and review of the pre-existing landscape of HIT at the local level.

Please see our case study on primary care digital transformation for further recommendations.

## 7. Case Study 2: Accelerating the digitisation of primary care services in response to the COVID-19 pandemic

### **Context**

Investing in health information technology (HIT) systems has been a policy priority for several decades, framed as a key enabler to delivering safe, efficient and patient-centred healthcare services.(154-156) However, poor usability, concerns about privacy, and a lack of interoperability have all been cited as persistent barriers to implementation(157) Wary of past failures, policy makers also remain cautious when designing HIT initiatives. England's £12.8 billion, now aborted, National Programme for IT (NPFIT) emphasised how several factors such as poor contracting decisions, not securing adequate engagement, and a lack of adaptability to local needs are major pitfalls to avoid.(133, 158-160) From a primary care perspective, the UK successfully achieved relatively comprehensive electronic health record (EHR) systems in the early 2000s. Most practices have developed capabilities for patients to access their records, but as of 2020 only 18.7% were aware of this, and only 5.8% had done so.(161) Moreover, while the infrastructure for remote consultations, predominantly by phone, existed in many practices prior to the COVID-19 pandemic, only around 10% of consultations were conducted in this manner.(162) Previous policy pushes for the use of alternatives to face to face consultations had centred around demand and workload management for which evaluations showed potential benefits were often not borne out.(163, 164)

### **Goal**

As the COVID-19 pandemic emerged in the UK in March 2020, primary care services were faced with the sometimes competing goals of ensuring continuity of services while limiting opportunities for transmission of coronavirus between patients.

### **Relevant Domains**

- Domain 1: Governance
- Domain 4: Medicines and Technology

### **The Case**

In response to the COVID-19 pandemic, driven by national guidance,(165) the model of care to access primary care services rapidly transformed from one heavily reliant on face-to-face consultations to one where patients are triaged by telephone or a structured online form to either a video, telephone or face-to-face consultations. As most communal areas in primary care premises are poorly set up for distancing, patients with respiratory symptoms were triaged to designated 'hot hub' practices. Patients were also encouraged to seek medical help online when possible, and to request prescriptions remotely via telephone or online services. To support these efforts, NHS England rapidly completed a procurement process for video consultation software, resulting in 11 preferred providers.(166) NHS Digital supported these efforts through publishing a framework which outlined expected standards and operating procedures for primary care.(167) providers. To address concerns around privacy and increased risk of litigation, statements from the Information Commissioner's Office (ICO),(168) and the General Medicine Council (GMC),(169) acknowledged the unprecedented challenges created by the COVID-19 pandemic, and confirmed this would be considered in any future regulatory investigation. These measures combined resulted in approximately 85% of consultations being conducted remotely at the peak of the pandemic, and 95% of GP practices reporting they had achieved video consultation capability.(170)

## **Analysis**

In a matter of weeks, NHS England successfully fulfilled a long-term objective to provide a 'digital first' offer for primary care services.(3) Such a rapid transformation in so little time is unprecedented, and undoubtedly a major achievement. The imperative to protect patients and staff secured high levels of engagement which if sustained, could lead to long-term change. In contrast to previous centrally coordinated HIT initiatives, a concerted effort from national stakeholders has driven change. Moving forward it is important to establish any unintended consequences. The system of 'total triage' may have impacted continuity of care, with patients potentially more likely to consult with several different healthcare professionals about the same issue. It has also been suggested that general practitioners may have a lower threshold for some referrals, prescriptions or investigations to mitigate against the perceived additional risk of consulting patients remotely.(171) This could contribute to increased costs, over diagnosis, and adverse events. The total number of primary care appointments dropped by just under a third during the peak of the pandemic,(172) and urgent referrals of patients from primary care with symptoms suggestive with cancer dropped by over 70%.(137) These are yet to return to pre-pandemic levels. It is possible that reduced access to face-to-face appointments has exacerbated these trends, but this assertion requires further investigation. The implications for chronic disease management are unclear as of yet. Many routine blood tests and appointments were cancelled during the pandemic, however primary care providers have adapted through increased use remote monitoring, for example, by use of home blood pressure monitoring. This will require further analysis in the coming months. Abruptly shifting to a model of care heavily reliant on remote teleconsultations and access to the internet may have caused digital exclusion. The scale of this challenge should not be underestimated as it is estimated that 9 million people in the UK are unable to access the internet without help.(173) Significant inequalities also exist, with survey data revealing that older people, those with a disability, and people on lower incomes report lower levels of digital literacy and access to the internet.(174) Analysis has also suggested that workforce demographics, for example the proportion of staff deemed at 'high-risk', could be a major factor influencing the provision of face-to-face appointments rather than systematic analysis of local population needs.(175)

There is an urgent need to invest in quantitative and qualitative evaluation of this emerging model of primary care that incorporates the perspective of patients and healthcare professionals. Ideally national policymakers, i.e. NHS England, should draw upon the findings of this research to inform guidance on the optimal mix of face-to-face and remote consultations for different patient groups. This could then feed into workforce planning efforts to deliver a workforce that can meet local population needs. The cost implications of providing services to different populations who prefer face-to-face versus remote consultation and vice-versa, need to be investigated. Once established, reimbursement mechanisms, such as risk-adjusted capitation payments, need to be adjusted to promote the financial sustainability of services. These steps are necessary to inform the inevitable readjustment of the primary care system post pandemic, and to ensure that primary care services remain responsive to local needs and preferences.

## **Recommendations**

Recommendation 4E: To evaluate implications of increased uptake of remote teleconsultation on access to, continuity of, and quality of, care, including considerations of primary-secondary care interface, and clinician behaviours such as thresholds for prescriptions and ordering investigations.

Recommendation 4F: For NHS England to develop guidance on the methodology to determine the optimal provision of face-to-face versus remote consultations based upon local population demographics and preferences.

Recommendation 4G: To investigate the cost implications of providing services to different populations who prefer face-to-face versus remote consultation and vice-versa for primary care, and to adjust reimbursement mechanisms accordingly.

### ***Limitations***

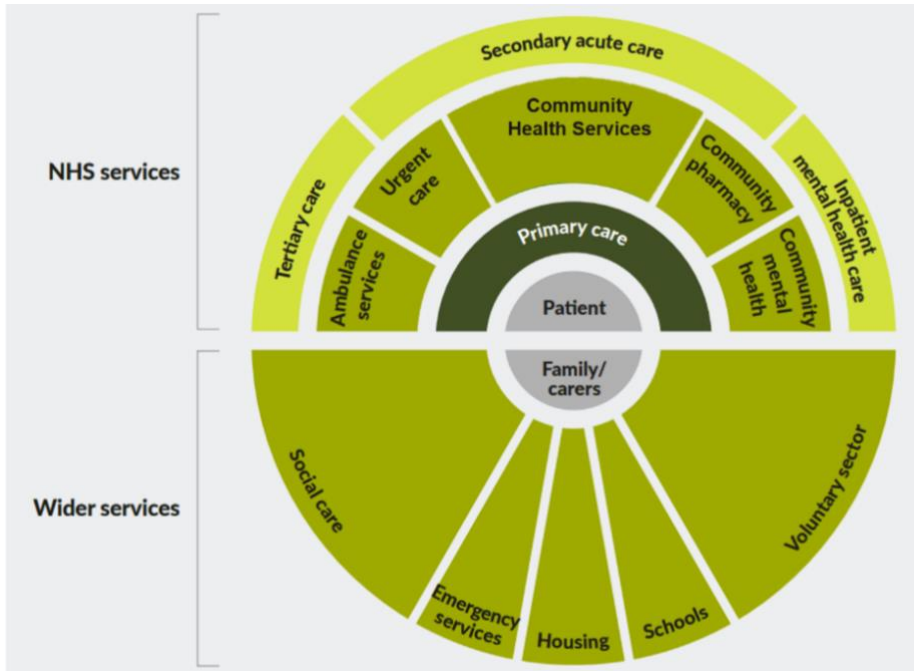
There are certain contextual factors which limit the generalisability of conclusions drawn from this case study. The organisational structure of the NHS, with a single body mandated to coordinate policy change, offers certain advantages in coordinating centrally driven policies that other more fragmented healthcare systems, such as those funded via social health insurance, may not benefit from. Moreover, as the digitisation of primary care services in the UK has been a long-term policy priority, many GP practices had already implemented the software and hardware necessary for remote consultations prior to the pandemic. Similarly, the primary care system in the UK enjoys relatively advanced HIT systems, evolved over several decades. This may not be the case in other countries, where typically secondary care services have a more advanced HIT infrastructure. Finally, the scope of this case study is exclusively on primary care. Whereas most countries, including the UK, witnessed large scale changes in the use of HIT across the healthcare system.

## 8. Domain 5: Service delivery

### 8.1 Service provision in England

Figure 5 gives an overview of service provision in England and relationship with non-NHS services. Table 7 summarises key features of different levels of care.

Figure 5: Overview of service provision in England



Source, adapted from: (176)

Table 7: Key features of service provision by level, England

Level	Key features
Primary care	<ul style="list-style-type: none"> <li>Serves as first point of contact for patients.</li> <li>GPs have gatekeeper role in access to specialized care (177)</li> <li>Current policy encourages multidisciplinary GP practices to work together and more closely with community services, mental health, pharmacy, voluntary services and others. (178)</li> </ul>
Secondary care	<ul style="list-style-type: none"> <li>Covers hospital and community services.</li> <li>Largely provided in state owned hospitals. NHS pays for some acute elective provision in private hospitals.</li> <li>a range of services are provided under 'urgent care' including a national telephone helpline, walk-in centres, minor injury units and pharmacists (179)</li> <li>Specialist services such as cancer, stroke and vascular surgery have been increasingly centralized into specialist units.</li> <li>Emergency care provided through Accident &amp; Emergency and ambulance services.</li> <li>NHS Mental health trusts manage around 80% of secondary mental health services (180)</li> </ul>
Tertiary care	<ul style="list-style-type: none"> <li>Specialised services (e.g. cardiac surgery, neurosurgery, cancer management) often provided through large teaching hospitals.</li> </ul>

A consistent policy rhetoric has been around doing more in the community and closer to home for patients and less in hospitals but changes to provision of care have not always been accompanied by the level of investment needed to realise potential benefits. (181, 182) A number of changes have been made to the primary and secondary care interface such as direct access to some diagnostics and direct access for patients to services such as physiotherapy. However, these remain limited. Even where recommended (e.g. to improve cancer diagnosis (183)), GPs continue to report barriers to access; compounded by low numbers of scanners and capital spend overall (Domain 2).(123, 184) From the inception of the NHS, there have been disparities in funding, priority, respect and political will given to mental health in comparison to physical health, although legislation and policy are beginning to address this.(185-187) Increasing focus has been given to integrated care models but a lot remains to be done.

## 8.2 Pressures on service provision prior to COVID-19

Before the COVID-19 pandemic, primary care, had been regarded as being in crisis. Increasing workload had not been matched by increases in funding or workforce (see domains 2 and 3). Primary care was handling increasing complexity in cases and balancing the need to increase access with other key features of care such as continuity. Typically held in high regard by the general public in the UK, satisfaction with primary care has reduced in the last decade.(188)

Following a period of growth, funding to the NHS slowed substantially in the decade from 2010 meaning that the NHS was driven to close the gap between need and available funding. The Quality, Innovation, Productivity and Prevention initiative of the Department of Health at the time set the target of making £20billion in efficiency savings. This was pursued through efficiency targets achieved by holding down the price of hospital tariffs (see Domain 2) and, from 2014, through the Quality Outcomes Framework (QoF) pay-for-performance system in primary care. A pay freeze for NHS staff also reduced costs, although it contributed to high spending on agency staff in the context of staff shortages.

Hospitals continued to be a major focus of efficiency savings. Bed numbers continued to decline and have more than halved in the last thirty years(189). Reducing length of stay and variation in length of stay were also seen as key to improving efficiency. Length of stay in England has declined over the last two decades from an average of 8.4 days for admitted patients in 1998/99 to 4.5 days in 2018/19.(189) Demand for hospital care has risen, faster than can be explained by population change. (190, 191) The result of these trends is that bed occupancy in England is typically higher than other comparable systems(192) and from 2010/11 to 2018/19 rose further still from an average occupancy of around 85% to 90% (beds available overnight).(189) In 2018/19 winter pressures saw general and acute bed occupancy regularly above 95%, raising concerns about patient safety and capacity. For hospitals a trebling of 'high-risk' maintenance repairs outstanding was observed from 2013/14 to 2018/19.(190)

Demand for mental health services had increased significantly and Mental Health Trusts which provide health and social care services for people with mental health problems were also running large deficits, struggling to meet demand during the last 10 years. (193)

There have been some movements in England to address rising demand through increasing emphasis on overdiagnosis (e.g. detection of asymptomatic disease that would not become clinically apparent). Scotland and Wales have taken a more active approach in this area with nationally sponsored programmes addressing this.(194, 195) Attention has also been given to improving shared decision making to increase appropriateness of decisions, although challenges remain to achieving this, particularly within a resource stretched system.(129, 196, 197) Overall it has been argued that the NHS has focused overly on process efficiency measures and should give more focus to productivity, quality improvement and outcomes for patients as well as a need to move away from centrally driven short-termism.(198, 199) Despite the complex regulatory and organisational landscape described, the NHS is recognised as having explicit standards of quality and safety of care for health and social care, supported in legislation and monitored, inspected and regulated by the Care



Quality Commission.(200, 201) In addition to the evaluation of medical technologies, NICE is responsible for producing evidence-based guidance and advice for health, public health and social care practitioners and develops quality standards and performance metrics for provision.(202)

### 8.3 Service provision in the response to COVID-19

In terms of service provision, the NHS responded with speed and innovation despite the already stretched system(203):

- The workforce adapted and provided care in unprecedented circumstances.
- Thousands of healthcare professionals came back from retirement.
- New ways of working quickly emerged, for example, in the areas of enabling access to emergency supplies of end-of-life medications, the development of personalised care plans in primary care for vulnerable patients and closer collaboration between primary and secondary care as GPs have tried to reduce unnecessary referrals and admissions.
- Rapid expansion of critical care capacity through creation of temporary 'Nightingale' hospitals.
- Rapid adoption and utilisation of phone and video consultations which accounted for 85% of consultations in primary care at the peak of wave 1 (see Case Study 2).
- Vulnerable groups of patients were rapidly identified and advised to shield.

The NHS has demonstrated resilience in its response to COVID-19 but the impacts of the pandemic highlight the need to strengthen features of a sustainable system and to reduce vulnerability of the system from future shocks. The case has been made, for example, that £1.3 billion was required to support hospital discharge as part of the COVID-19 response but investment to increase capacity across the system could lead to benefits in crisis and non-crisis times.(204) More widely the case has been made to learn from innovative ways in which parts of the NHS have worked together and to redress the balance of investment between primary, social and community care and secondary care. (27, 205-207)

The COVID-19 response has also highlighted the existing stresses on the service delivery system in England and the problems in 'running the system hot' as had increasingly become the case(204) :

- The initial response was focused on the NHS with the message, 'Stay Home, Protect the NHS, Save Lives'. Subsequent analysis of primary care consultations led to concerns that non-COVID-19 patients were not accessing care despite having need to.(208)
- Elective care, including two-million non-urgent surgeries, had to be cancelled to ensure sufficient critical care capacity and GPs were advised to not make routine referrals.
- 'Medically ready' patients were discharged from hospital with emergency funding for support packages but this meant that patients were discharged to care home and other settings without testing for COVID-19.(209)
- GP support for care homes was initially inconsistent.(210)
- Although vulnerable groups of patients were rapidly identified, several flaws with data sources were identified resulting in people being missed or contacted inappropriately and ultimately the shielded patient list required manual verification by healthcare professionals.(211)
- Over-stretched mental health services have seen a reduction in routine activity but in increase in urgent and emergency cases with concerns over large levels of unmet need given the impact of COVID-19 lockdowns and reported high levels of poor mental wellbeing in the community.(212)

In Autumn 2020, the UK saw a second rise in cases of COVID-19. In contrast to the first wave the NHS attempting to maintain elective care whilst simultaneously treating patients with coronavirus. However the NHS is operating with acute workforce challenges on top of chronic shortages and having to tackle large backlogs in elective care and cancer treatment. In November 2020 4.46 million people were waiting to start hospital treatment, an increase from 4.42 million in November 2019. At the same time rates of referral from primary to secondary care have reduced and, along with lower rates of consultations per person in primary care, suggest suppressed need.(213, 214) Those waiting a long time for treatment had also increased. The NHS Operational Plan for 2020/21 was to eradicate waits of more than one year(4) but in October 2020, more than 111,000 people had been waiting for over a year. In cancer care more than half million patients were waiting for more than six weeks for a diagnostic test in June 2020 compared to 30 000 in February.(215) This has led to calls for a radical expansion and overhaul of diagnostic services in the NHS, including the introduction of community hubs to improve access and convenience for patients and to give greater means to be able to manage care in primary care which has long been a stated aim. Community hubs will take varying forms but be situated outside acute hospitals, in places of convenience to patients and offer a range of imaging, cardiorespiratory and pathology services as a minimum.(123) This will apply not only to cancer pathways. The NHS has also increased its reliance on the independent sector to allow the continuation of elective care in premises less exposed to coronavirus. With the overall waiting list for elective care on the NHS growing, the NHS plans to agree a multi-year multi-billion pound contract with the independent sector to help address backlogs of care. However at the same time there has been increasing scrutiny of governance structures and patient safety in the independent sector and concern raised as to how much activity can go to the independent sector without undermining public hospitals.(216-219)

## 8.4 Recommendations

Recommendation 5A: To address the backlog of diagnostic investigations by urgently increasing investment in diagnostic infrastructure and workforce, the establishment of community diagnostic hubs, and adaptation of skill-mix, as recommended by the Independent Review of Diagnostic Services for NHS England.

Recommendation 5B: To make increased utilisation of the independent sector to clear backlogs of NHS elective care dependent upon central rather than local investment and commitment from the independent sector to align governance structures and information systems to NHS standards and practices.

Recommendation 5C: To ensure enhancement of future resilience by maintaining an earmarked funding stream that aims to systematically capture and learn from innovation in service delivery during the different phases of the COVID-19 response and enable implementation of change.

Recommendation 5D: To utilise improved system-wide preparedness planning as an opportunity to strengthen integration at the local level; through increased coordination of service delivery between sectors and the routine assessment of impact on sustainability and resilience within all planning and evaluation.

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