UK Health Security Agency

NHS

Third Health and Care Adaptation Report

December 2021

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Foreword

Climate change is already here. There is a clear and immediate need for the health and care sector to reduce its carbon emissions to net zero, and to adapt to the impacts of climate change that can't be avoided, building resilience into the system as it protects and promotes the health of populations now and in the future.

In October 2020, the NHS became the first national health system in the world to commit to net zero carbon emissions, launching its new National Programme for a Greener NHS. With overwhelming support from its 1.3 million staff, the NHS Net Zero Strategy plots an ambitious, and feasible set of actions to respond to climate change. It also commits to building resilience and adaptation into the heart of the net zero agenda, understanding that these two issues must be tackled as two sides of the same coin.

Public Health England (PHE), and now the UK Health Security Agency (UKHSA) continues to add scientific evidence on the health impact of climate extreme events. In developing a Single Adverse Weather and Health Plan to replace the Heatwave and Cold Weather Plans for England, UKHSA will provide updated guidance on cold and hot weather, drought and flooding.

This Third Health and Social Care Adaptation Report builds on the 2015 report co-developed by the NHS and PHE. It summarises the current and future effects of climate change on the sector and outlines practical next steps to build resilience and adapt. As climate change has the potential to widen existing health inequalities, the report also outlines how to support those most vulnerable to the systemic shocks associated with climate change.

The report's ambition is to help local, regional and national teams understand, plan and respond to climate change, while delivering on net zero commitments.

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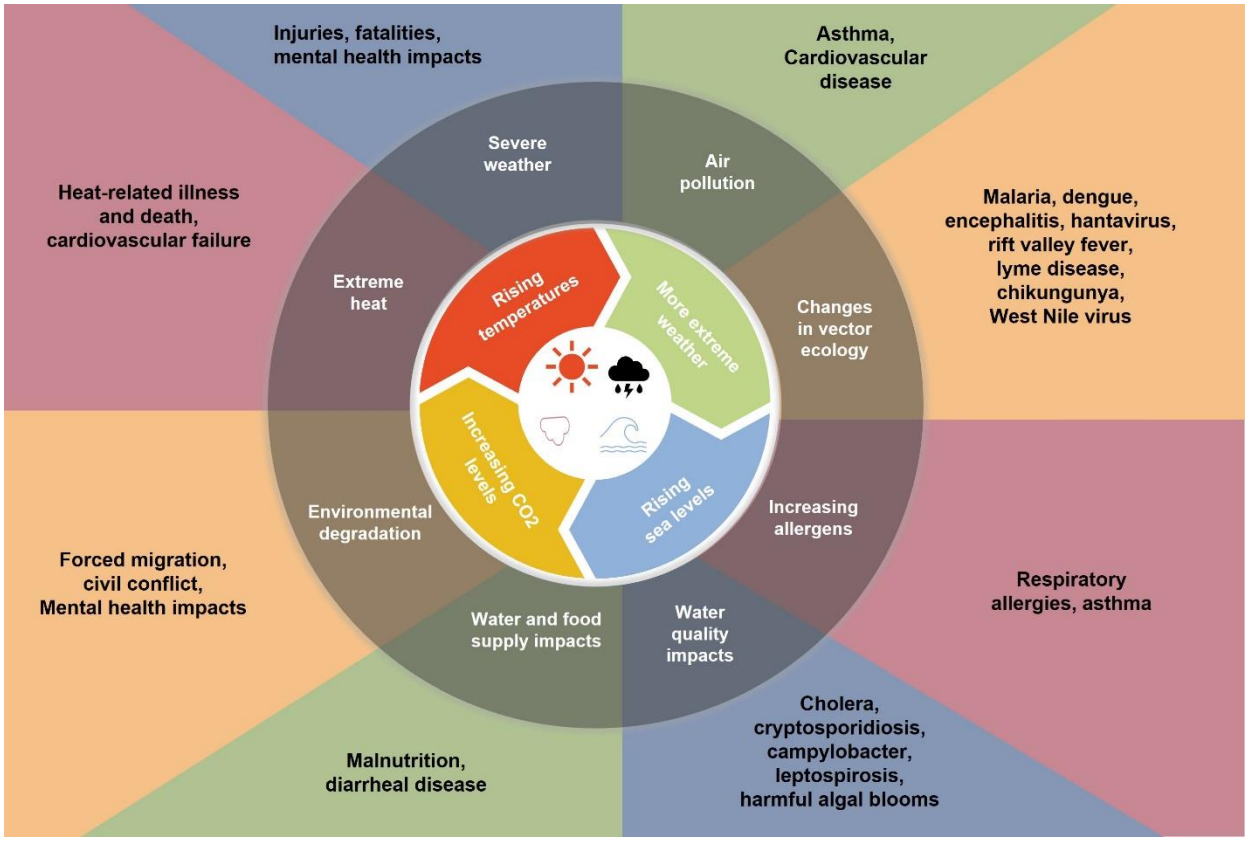
1. Introduction

The environment in which people live and work is one of the largest determinants of their health and wellbeing[i]. With rapidly rising global temperatures – currently 1.09°C above pre-industrial levels – the direct and indirect health impacts of climate change are evident, with Figure 1 providing an overview of these effects globally. Projections from the Met Office[ii] make clear that the UK is set to experience more frequent and intense extremes of heat and flooding, and the spread of certain vector-borne diseases. Indeed, extremes of heat resulted in over 11,000 excess deaths[iii] across Europe, during the summer of 2020.

Figure 1: Impacts of climate change on human health[iv]



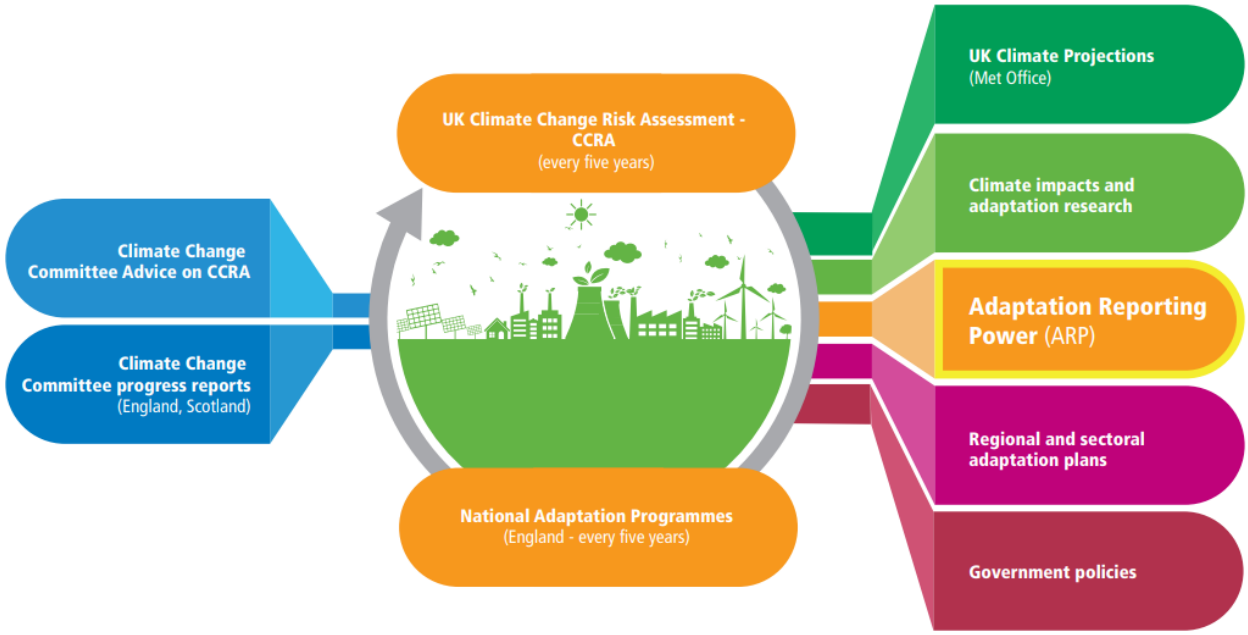
The latest assessment from the Intergovernmental Panel on Climate Change[v] makes clear that under all projected emissions scenarios, temperatures will continue to rise into the mid-century. Given this, there is a need to accelerate both mitigation efforts to limit future climate change[vi], and adaptation efforts to reduce the harm from warming that is already locked in[vii].

Climate change is a threat to the significant progress made in health and social care to date, impacting the sector's ability to deliver services and manage population health. Actions must be taken to build the health and care sector's climate resilience, so it can effectively respond to climate change impacts while maintaining core functions and identifying lessons learned to reorganise if required[viii].

Adaptation in relation to health and social care are actions or processes that reduce mortality and morbidity associated with climate change, while strengthening the sector's capacity to provide a high standard of care while the climate changes[ix].
Adaptation actions are often interlinked: for example, long-term adaptation planning often relies on accessible surveillance and climate projection tools[x], whereas the successful implementation of adaptation actions requires a health workforce trained to respond to new challenges[xi].

Government has already taken steps to minimise rising global temperatures through the Climate Change Act 2008[xii]. As well as a net zero commitment and regular carbon budgets, the Act establishes a five-yearly cycle of assessment and intervention in the form of the Climate Change Risk Assessments (CCRA) and the UK National Adaptation Programme (See Figure 2). This is further iterated on and developed in the 25-year Environment Plan[xiii], the Greening Government Commitments[xiv], and the Green Finance Strategy[xv]. The health and care sector has a responsibility to assess and act on its resilience and adaptation needs, and has a strong track record in doing so, summarised throughout this report.

Figure 2: UK five-year statutory adaptation cycle



1.1 Structure and aims of this report

Several intellectual frameworks describing adaptation have been developed, and for the purposes of this report, the World Health Organization's (WHO) Operational Framework has been selected for its systematic approach and direct applicability to health systems, healthcare facilities, and public health programmes[xvi]. The three principle building blocks described in the adapted framework – health information systems, health workforce development and resourcing, and service delivery – are used to structure this report.

Figure 3: Structure of the report (adapted from the WHO's climate resilient health systems framework)

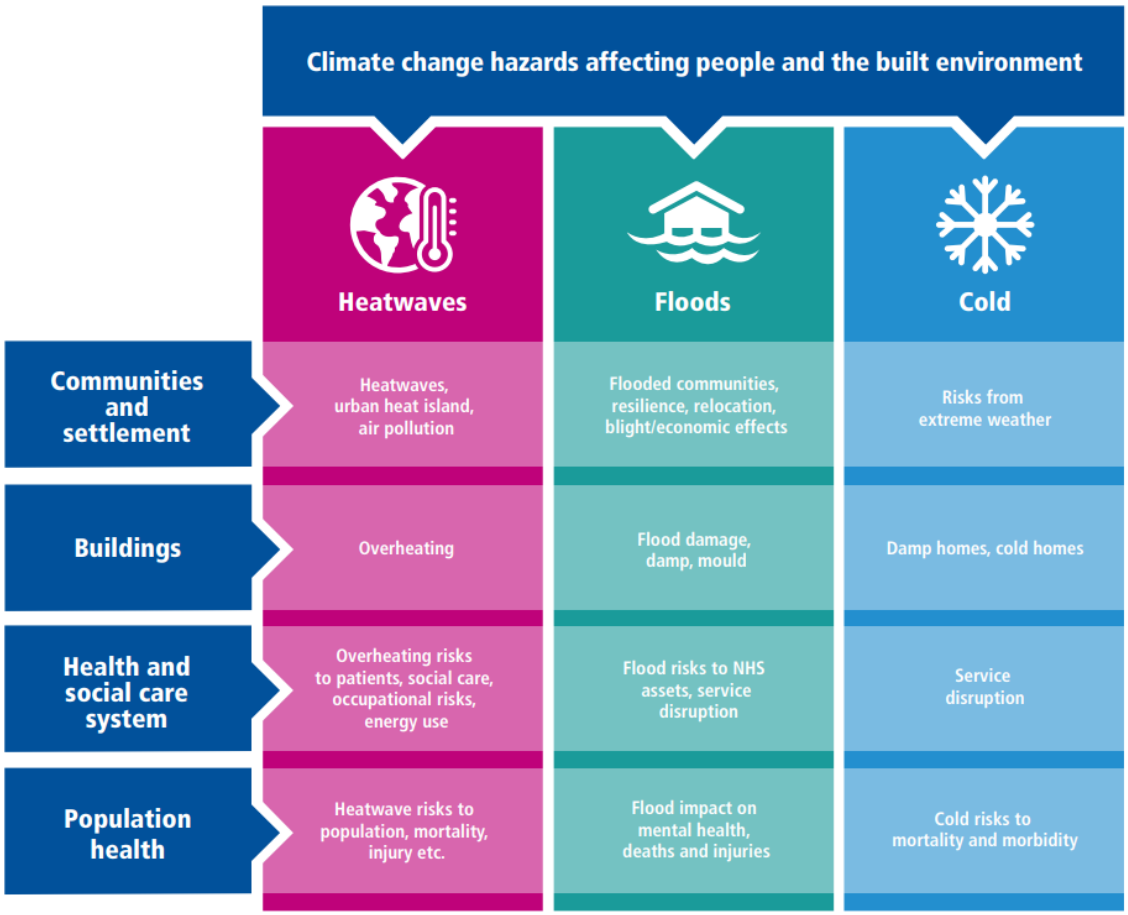
The Department for Environment, Food and Rural Affairs (DEFRA) invited the NHS to produce the report on behalf of the health and care sector. The report was developed by NHS and PHE, and the national adaptation programme will be taken forward by the UKHSA. It builds on the CCRA, considers the findings of the Climate Change Committee's (CCC) 2021 Progress Report and feeds into the five-year cycle of risk assessment and planning. This cycle is outlined in the UK Climate Change Act 2008 and described above, as a component of the Adaptation Reporting Power.

This report aims to:

- **review progress** on adaptation in the health and social care sector since the previous report in 2015
- **provide an overview of the next steps required at a local, regional and national level** to address any identified risks and build resilience.

A steering group of representatives and technical experts from the UKHSA, the NHS, Department of Health and Social Care (DHSC) and DEFRA have supported the development of this assessment. The group reviewed climate change hazards highlighted in CCRA for their direct relevance to the health and social care sector and identified 12 for inclusion. The findings of the UK Climate Risk Health and Social Care Briefing[xvii] were also used to assess the current and future effects of climate change on the sector. The potential impacts on services, patients, and population health, were analysed using a broad range of data and evidence, summarised throughout the report.

Figure 4: Climate change hazards affecting people and the built environment



2. Health information systems

Health risk is a function of environmental hazard, exposure, and underlying population vulnerability, and fully understanding the nature of these three components is an essential first step. To this end, every sound adaptation strategy requires robust health information systems. They support a range of functions, from understanding the public health effects of a heatwave or flood, or the development of a long-term research strategy, to the provision of an effective early warning system for extreme events.

2.1 Vulnerability, capacity, and adaptation assessments

Climate vulnerability and adaptation (V&A) assessments are used to assess which populations are most vulnerable to differentiated health effects, to identify weaknesses in the systems that should protect them, and to specify adaptation options and interventions required to respond. The process of completing a V&A assessment can also help identify and build a coalition of key stakeholders. Guidance and tools are available to support V&A assessments and deliver equitable responses to climate change: including the WHO checklists[xviii] to assess vulnerabilities to climate change, and the Climate Just webtool[xix].

The NHS, UKHSA, and the Care Quality Commission (CQC) work together to monitor the impacts of climate change on health and service delivery, and several mechanisms exist within the sector to assess risk and project disease burden.

UKHSA supports and conducts research into the health impacts of climate change and acts as the operational lead for health and weather early warning systems, collaborating with the Met Office to communicate warnings about temperature extremes. UKHSA's Real Time Syndromic Surveillance Team (ReSST) monitors the health impacts of extreme weather events. UKHSA also manages pathogen-borne disease risks through vector surveillance programmes. In turn, integrated risk assessments, such as those used by the NHS' Emergency Preparedness, Resilience and Response (EPRR) team, rely on UKHSA's early warning systems to monitor and reduce risk to NHS facilities, services and patients. The CQC is responsible for a range of risk assessment functions, such as collecting data on notified service interruptions, including those resulting from severe weather events.

2.2 Health and climate research

Between 2007 and 2019, peer-reviewed research on health and climate change has risen eight-fold, with the UK responsible for a large proportion of the available studies[xx]. This work has better informed both an understanding of the health consequences of climate change, and the effectiveness of the adaptation responses available.

A range of organisations are responsible for driving this research forward, including the Wellcome Trust, the Children's Investment Fund Foundation, the Centre for Sustainable Healthcare, and medical journals such as The Lancet and the British Medical Journal. National research bodies have also contributed significantly, including:

- the Natural Environment Research Council, which drives investment in environmental science in the UK, contributed €3.4 million to a multilateral funding call in 2019 to improve understanding of pathways between climate, environment, and health. Principal investigators based in England lead five of the nine awarded contracts.
- the National Institute for Health Research established the Health Protection Research Unit in Environmental Change and Health[xxi] which supports decision-making relating to the impacts of climate change on health.
- the Medical Research Council (MRC), responsible for coordinating and funding medical research in the UK, established the MRC Centre for Environment and Health. The Centre supports collaboration between leading groups researching the health effects of environmental hazards across a range of specialties, techniques, and approaches, while supporting the translation of their research findings into policy[xxii].

Despite this, there is always a need for further evidence, with a few research gaps evident. Further research is needed to evaluate the efficacy of adaptation actions in England and to assess any co-benefits or harms to health. Enhanced disease and vector surveillance and monitoring systems[xxiii] should be implemented alongside research on vector competence, as warmer weather is contributing to increases in tick abundance and exposure to tick-borne diseases[xxiv].

Additionally, research to improve understanding of interacting risks, such as increased service demand and overheating of buildings, would guide prioritisation of adaptation actions and support development of risk assessments[xxv]. Considering that climate change is a factor that may influence recreational use of outdoor space; further evidence is needed to understand the extent to which a warmer climate will increase physical activity in the general population[xxvi].

2.3 Integrated risk monitoring and early surveillance

Good quality, timely, and meaningful surveillance data allows efforts to increase system resilience to be targeted and effective. Health information, integrated surveillance and early warning systems are core components of a climate resilient health system.

The UKHSA works with partners across the country to collect, collate and analyse a wide range of environmental health data, ranging from the occurrence and impacts of extremes of weather, acute and chronic environmental exposures, through to poor air quality exposure. The Environmental Public Health Surveillance System (EPHSS) is a particularly useful tool, used to collect and analyse data on a range of environmental risks, exposures, and health outcomes; ranging from acute environmental events, lead exposure in children, and meteorological variables[xxvii]. For the latter, EPHSS users can request observational weather station data from the Met Office Integrated Data Archive System through a web-portal. The output is in CSV format, facilitating the straightforward use of the data by health professionals[xxviii]. The UKHSA uses EPHSS to examine data and intelligence from a range of internal and external sources to monitor risk factors where public health advice and interventions are possible.

Risk management and business continuity planning feature in the CQC's inspection frameworks; however, these do not currently make specific reference to assessing the risk from extreme weather events. Additionally, the NHS monitors the number of overheating events that trigger a risk assessment via the Estates Record Information Collection (ERIC) returns.

The Strategic Health Asset Planning and Evaluation (SHAPE) tool supports strategic planning for all healthcare services. Local organisations and health services use the tool to map local risks, to assess the best locations for services, and evaluate any impact of service configuration on population health. The SHAPE tool also informs the development of flood, emergency response, and community plans. The NHS uses the SHAPE tool to assess the current flood risk to primary, tertiary, and social care facilities in England. Using the SHAPE tool in conjunction with meteorological forecasts, will enable national and local responders to identify sites at risk of flooding, and ensure long-term adaptation interventions are in place to protect buildings from damage, and support the continuity of clinical services.

Since 2015, there has been significant progress made in research and health information systems to build climate resilience and guide adaptation actions. Additional work is needed to maintain this trajectory and a summary of forthcoming actions is below.

Next steps – Health information systems (I)

I1. NHS will host data and information on climate risk and local experience on FutureNHS and the Greener NHS dashboard to support development of adaptation strategies by 2022.

This will support decision makers to apply findings of climate and health research at a local and regional level and build knowledge among NHS staff about the impact of climate change on health and the importance of adaptation.

I2. UKHSA will develop and implement its forthcoming Single Adverse Weather and Health Plan.

As part of the National Adaptation Programme, the UKHSA, DHSC, Local Government Association and the NHS are co-developing a new Single Adverse Weather and Health Plan. This builds on, and will replace, the Heatwave and Cold Weather Plans for England. It will give guidance on cold and hot weather, drought, and flooding to inform action across the health system and local communities.

I3. NHS and the CQC will define and assess the climate-related events that impact on health and care providers, which will be employed in future assessments of primary, secondary, and social care sites.

NHS sites will routinely collect more data on events that don't disrupt services but do have an impact (such as a minor flood), to assess their wider impact and identify trends across health and social care. This more complete data set will be continuously used to inform future adaptation planning.

I4. NHS will collaborate with the UKHSA, DHSC, DEFRA, and NIHR to explore opportunities for funding and research that supports adaptation in health and social care.

More research is needed on adaptation to support better use of infrastructure, fairer allocation of investment, and drive the efficient use of public resources. The NHS has committed to embed net zero in its research strategy in the Delivering a Net Zero NHS report and will continue to work with partners to ensure the strategy supports research to achieve climate resilience.

3. Service delivery

Impacts from climate-related extremes are a barrier to provision of coordinated health service delivery, affecting access, coverage, continuity, and quality[xxix]. Findings from health information systems can be used to inform key health programmes and policies to manage climate-related risks.

Given the risk of potential service interruption, the NHS has a vast array of mechanisms in place to respond to any continuity issues. For example, the Emergency Preparedness Resilience Response (EPRR) Framework[xxx] embeds emergency planning and management requirements into all NHS funded organisations, and providers are required to notify the CQC of any weather event that interrupts services.

Central to the EPRR Framework are business continuity management systems and business continuity plans (BCP). These enable NHS organisations to respond and maintain continuity of key services in the event of disruption from identified local risks, including severe weather. Having a BCP is mandatory for category one responders (for example emergency services, local authorities and NHS Trusts), and the CQC keeps a copy of each plan which is reviewed during inspections.

Since 2013, NHS BCP guidance requires “risk assessments [to] consider community risk registers and as a core component, include worst-case scenarios for severe weather (including heatwave, storm, prolonged periods of cold weather and flooding)”. Inherently, BCPs and the EPRR Framework, which operate across a short-time horizon and are key in supporting an emergency response, are most effective when paired with medium- and long-term planning.

The National NHS Estates and Facilities team work closely with regional and national EPRR teams to develop short-term action plans for climate change adaptation across the NHS Estate. A broad variety of tools are already available, with additional tools being created to evaluate and respond to severe weather events which may affect NHS buildings and clinical services.

The need for a longer-term perspective to complement this emergency response framework is seen most clearly in the CCC’s 2021 Independent Risk Assessment which explicitly recommends planning for both a 2°C and 4°C world[xxxi].

The following sections outline the requirements for business continuity and long-term adaptation planning at a national, regional, and local level.

3.1 National

Health and social care relies on major infrastructure, arterial road networks, utilities, and information technology. Disruption to any of these – including through severe weather events – will have knock-on effects for services and supply chains, which underlines the need for a collaborative approach to adaptation at national level across all sectors. Most products, including food, medicines, and ICT infrastructure, have complex and often international supply chains. While responsibility for the development of resilient housing and non-healthcare infrastructure is distributed across Government, the health and social care sector can provide broader support for health adaptation actions.

Nationally, a range of health and care agencies and partners manage national healthcare infrastructure, including NHS Digital, NHS Supply Chain, and NHS Property Services (NHSPS). Extreme weather events have always threatened supply chain disruption across all sectors, with climate change set to increase the risk of this in the future[xxxii]. Discussions with NHS Supply Chain (the arm’s length body responsible for providing procurement and logistics services for the NHS), and surveillance reporting the

impacts from severe weather events on NHS supply chains, suggest this area is currently well covered by emergency plans. Ongoing collaboration between NHS Supply Chain and relevant arm's length bodies will ensure supply chains are climate resilient to disruption from both national and international climate hazards.

Health facilities and infrastructure, including water and sanitation, must be climate resilient. Actions to build resilience may include using monitoring and assessment of waste and sanitation services, flood insurance and barrier defences, the relocation of key equipment to higher floors in flood-prone areas, and regular stress testing of BCPs[xxxiii].

The portfolio of government owned NHSPS comprises more than 3,000 properties with 7,000 tenants across England, representing around 10% of the NHS estate. It is responsible for facilities management, contracting, property development and construction project management. NHSPS has disaster response kits in place for events such as flooding and is using BCPs to ensure these are located at the most appropriate sites. NHSPS is also developing new reporting metrics to ascertain the extent overheating impacts their portfolio.

Digital technology increasingly underpins new models of care delivery. The COVID-19 pandemic demonstrated the role ICT and digital services play in increasing health system resilience. It is imperative that the health and care sector reduces climate change risks to digital infrastructure, for example, the national NHS Estates and Facilities team will work with trusts most vulnerable to flooding to move data centres out of basements.

NHS Digital committed to investigate processes such as climate-related financial risk disclosure – to quantify operational delivery risk – in its Sustainability Annual Report 2019/20. Its normal procurement practices also include regular stress tests of digital infrastructure and business continuity. NHSX's What Good Looks Like framework supports progress towards net zero carbon, sustainability and resilience ambitions by meeting the Government's Sustainable ICT and Digital Services Strategy (2020 to 2025) objectives.

Expanded requirements for providers on adaptation planning are now included in the NHS Standard Contract, as part of the requirement to develop a Green Plan. Contract and adaptation planning have also been added to the NHS Estates Premises Assurance

Model, and from 2021 is mandatory. In 2021, the Greener NHS Data Collection was formalised and mainstreamed, to expand the data available to support the NHS in climate change mitigation and adaptation. This quarterly data collection includes four questions on adaptation, including the number of overheating events triggering a risk assessment and long-term adaptation plans. The Greener NHS Dashboard allows users to view data on sustainability measures at a national, regional, Integrated Care System (ICS) and, in some cases, individual organisation level. This will supplement the data ERIC collects.

A whole sector response to a systemic shock

The unequal distribution of COVID-19 mortality in England has highlighted how communities that are already disadvantaged can be among the most vulnerable to the effects of systemic shocks and extreme events. The response to the pandemic also demonstrates what can be achieved when all parts of the sector unite to mitigate disruption to service delivery during an emergency.

For example, prompt action from the outset to minimise disruptions to supply chain and procurement for essential medical supplies, a rapid move to digital models of care and the mobilisation of local resilience forums demonstrated collaborative action. The NHS also launched a volunteer campaign to assist those who were shielding from COVID-19, and with councils worked closely with the voluntary, community and social enterprise (VCSE) sector to manage this campaign and ensure an effective response at a local level.

In parallel, climate change also has the potential to widen existing health inequalities within the UK via both its direct and indirect impacts on health. This is due to individuals and communities having different degrees of exposure and vulnerability to the adverse impacts of climate change and often facing different barriers to adaptation. Greater exposure to impacts may particularly affect poor and marginalized groups, meaning climate change threatens to further widen social and health inequalities, exacerbate existing vulnerabilities, and potentially create new ones, unless these risks and interactions are addressed.

3.2 Regional

The NHS' seven regions support local systems to provide more sustainable care for patients and will deliver on a range of long-term outputs to meet net zero ambitions and accompanying adaptation activities. Each region has a senior responsible officer for Greener NHS, responsible for delivering these ambitions. Regional teams are also responsible for the quality, operational, and financial performance of their region's NHS organisations and support the development of ICSs.

NHS organisations, local authority and other partners have increasingly worked together as ICSs and, as of April 2021, 42 ICSs now cover the whole of England. It is anticipated that all partner organisations will transition to new statutory ICS arrangements from April 2022. As regions and ICSs cover a large area, they are well placed to drive adaptation commitments through identifying risks, supporting collaboration, and undertaking vulnerability assessments. Each ICS is currently developing their own Green Plan, based on the plans of its member organisations. The recently refreshed 2021 Green Plan guidance[xxxiv] includes the expectation that all ICSs and regions develop plans to mitigate the risks of climate change on their business and functions.

Over the next five years, ICSs and regions should have a clear understanding of the potential risks to service continuity and patient and resident health across their geography. Additionally, appropriate ongoing surveillance should be in place to gauge the levels of preparedness and resilience across primary, secondary, and social care, and provide targeted feedback. As a result, ICSs should be able to develop a sense of the infrastructure investment and action priorities to reduce identified risks. This can be achieved through improved alignment of health system leaders, regions, local authorities, and local enterprise partnerships.

3.3 Local

NHS trusts, social care and primary care sites rely on the EPRR Framework and BCPs to guide the local response to the impacts of climate change. Key risks faced include overheating (as evidenced by the number of overheating incidents that trigger a risk assessment captured on ERIC) and staff shortages during flooding alongside difficulty accessing sites for patients and staff[xxxv]. There is an opportunity for local EPRR teams to work closely with national and local estates teams to identify, prioritise, and implement local adaptation actions. For example, sites should not store key infrastructure, such as

data centres and electrical systems, in basements as this increases the risk of service disruption during flooding events. Going further, the Delivering a Net Zero NHS report and the NHSX What Good Looks Like framework highlight interventions such as making trust data cloud based, rather than storing it on site.

All NHS provider organisations must comply with relevant provider contractual and reporting requirements. This includes reporting manuals, estates reporting, business continuity and risk management, all of which include aspects of severe weather adaptation or resilience. The 2021/22 NHS Standard Contract includes the requirement for all NHS providers to develop a Green Plan.

Adaptation planning can be a particular challenge for social care sites as care providers are usually smaller and more dispersed than NHS trusts. Governance in social care is also unique. Social care provision sits under the DHSC and the Ministry of Housing, Communities and Local Government, with all services audited by the CQC. However, commissioning and contract management responsibilities generally lie with local authorities, and provider contracts often require a BCP. To support sites, the Care Provider Alliance published national guidance on business continuity planning[xxxvi] for social care providers which includes planning for severe weather.

Based on survey data from 2019, the level of business continuity planning in homecare is high, with 96% of respondents having a BCP in place. These plans cover responses to a range of severe weather events, including windstorms, flooding, heatwaves, and cold weather. The level of confidence that these plans will reduce risks to patients is high in residential care providers and homecare providers.

BCPs provide a solid foundation; however, are not the same as long-term adaptation plans and prioritisation of local adaptation actions is still required along with regular stress testing of BCPs. Further actions for the health and care system are summarised below.

Next steps – Service delivery (SD)

SD1. Build the capacity and resilience of primary, secondary, and social care services to anticipate and respond to the impacts of climate change through long-term adaptation planning and identification of sites at risk.

This should be based on local health vulnerability assessments and regional adaptation assessments, developed in consultation with healthcare professionals. Facilities and supply services must also adapt to be more climate resilient, which relies on cross-sector collaboration between government bodies.

SD2. The NHS National EPRR team will include climate adaptation planning in the 2022/23 revision of the EPRR core standards.

Adaptation planning should be considered for inclusion in future revision of the EPRR core standards to increase systematic scrutiny. Establishing a data collection on adaptation similar to ERIC would help effective tracking of both NHS and non-NHS provider engagement.

SD3. The CQC will identify sites that trigger risk assessments from overheating and include this in its national reporting.

The CQC could identify these events through the Greener NHS data collection and include their consideration in future assessments. Where appropriate, the CQC's inspection outputs could recommend review of a provider's plan.

SD4. All ICSs will build long-term adaptation planning into their Green Plans by 2025.

The EPRR Deep Dive suggests levels of adaptation planning vary across the sector. With the move to more integrated care delivery, adaptation planning should consider how staff will be supported during severe weather events, risks to local transport infrastructure, and barriers to delivering care in patients' homes which maintaining essential care delivery. This should include a stress test of business continuity plans over a wide geography; for example, flooding affecting multiple Trusts in a region.

SD5. National Estates and Facilities team will work with all trusts at risk of flooding to plan for future flooding events.

In particular, the team will complete their identification of vulnerable sites and support sites to move critical infrastructure out of basements, beginning with those trusts most at risk.

4 Leadership, workforce development and resourcing

4.1 Governance

There has been steady progress in embedding adaptation in policy and practice across the health and social care sector and the UK's presidency of the 2021 United Nations Climate Change Conference (COP26) provided an opportunity to further raise the profile of adaptation.

The COP26 health programme, DHSC and the Foreign, Commonwealth and Development Office committed to:

- building sustainable, low carbon and resilient health systems
- driving stronger domestic action to improve the resilience and sustainability of health and social care systems
- raising the voice of health professionals as advocates for stronger ambition on climate change
- promoting stronger action-oriented adaptation and health research through the Adaptation Research Alliance.

System leaders are central to ensuring effective governance of adaptation by promoting collaboration, highlighting local issues and being accountable for progress against targets.

Strong system leadership will support the long-term ambition for greater resistance through adaptation to climate change and other continuity risks, such as pandemics. The inclusion of climate resilience in clinical governance structures could improve accountability.

4.2 Workforce development

The health and care workforce are committed to the climate change agenda: according to a 2021 YouGov survey, 82% of respondents support the development of targeted mitigation and adaptation strategies (Green Plans) in their organisation or local workplace, with three in four staff wanting the NHS to take action on climate change in parallel to its response to the COVID-19 pandemic.

Educational needs for health system adaptation vary, from improving knowledge of the health impacts of heatwaves[xxxvii], to educating Trust Boards about the financial implications and cost-savings from long-term adaptation actions[xxxviii].

Among clinicians and healthcare staff, educational needs vary by impact pathway. Flood responses require frontline staff to appreciate the risks and potential for disruption[xxxix]; the response to an increase in vector borne diseases requires knowledge of vector distribution[xl]. Many emergency and health professionals recognise they need further understanding and training to comprehensively deal with severe weather events[xli].

The NHS is starting to develop tailored training materials to educate all NHS staff on both mitigation and adaptation. This will include specific training for those in leadership positions, through the integration of climate change training into existing leadership programmes partnered with a commitment to design and develop tailored 'green leadership' modules.

4.3 Resourcing

The Government have been working to ensure healthcare services drive activities that prevent ill health rather than cure it wherever possible[xlii]. The approach to delivering a net zero NHS is no different: adaptation actions may negate the impacts of climate change by boosting climate resilience; however, without mitigation, these impacts will only worsen.

Collaborating with the Department of Business, Energy and Industrial Strategy (BEIS), the NHS continues to work towards the net zero targets, drawing on, for example, over £260 million of funding for the UK Government's Public Sector Decarbonisation Scheme and a £50 million investment in low-carbon lighting; the latter includes thermal monitoring to assess overheating in hospitals that have identified this as a risk.

Since 2015, there has been considerable progress developing system leadership, increasing awareness and investment in climate change adaptation. There are however several actions that should be taken to drive this forward.

Next steps – Leadership, workforce development and resourcing (LWR)

LWR1. Continue the development of cross-system leadership in adaptation at a national level to build climate resilient health systems and institutions.

System leaders play a key role in raising the profile of climate change, to support the implementation of adaptation actions to build a climate-resilient health and care sector.

LWR2. Assess all initiatives under the Greener NHS programme to ensure they are climate resilient and that adaptation strategies do not increase emissions.

The long-term ambition, which should be driven by system leaders, is for adaptation measures to offer resilience to climate change and other continuity risks, such as pandemics. This will ensure all interventions contribute to an overall reduction in emissions while also adding resilience to the impacts of climate change.

LWR3. The National Estates and Facilities team will develop Net Zero Hospital Building Standards which directly tackles risk of overheating.

These standards, to be published in late 2021, will look to improve insulation and increase the number of thermal sensors used to reduce overheating in hospitals.

LWR4. Encourage accelerated adoption of adaptation activities in trusts through existing funding mechanisms in areas such as cooling, greenspace or surface drainage. Guidance on best practice will be hosted on FutureNHS platform.

Investment in temporary measures, such as portable air conditioning, addresses immediate risks to staff (while improving productivity) and patients from hot weather. They are unlikely to fully address the largest impacts, namely loss of key staff and pressure on staff time and may increase emissions. Adaptation planning should consider investment in long term measures, such as external shading. Examples of local best practice will be hosted on the Greener NHS FutureNHS platform.

LWR5. All ICS net zero board-level leads will manage mitigation and adaptation activities.

The net zero leads will be accountable for adaptation planning and overseeing prioritisation and implementation of adaptation actions.

LWR6. Each ICS will identify all sites with evidenced overheating risk to ensure investment in new buildings or retrofitting including passive and active cooling measures.

More awareness and understanding of the risks of overheating is needed across the health and care sector. For building fabric investments, there may be a need to support providers in making the business case, by highlighting existing tax incentives or providing subsidies.

LWR7. NHS and the UKHSA will deliver cross-health e-learning modules for the health workforce on climate change adaptation and mitigation.

There is limited knowledge and understanding of, and training, in the consequences of climate change. While there is increasing awareness of the role of the NHS in climate change mitigation, many health and care staff do not recognise the relevance of climate change mitigation or adaptation to their work.

5 Conclusion

This report highlights the complexity of building a climate resilient health and care sector, including the fragmentation between tertiary, primary and social care services. The focus on adaptation at COP26 provided an unprecedented opportunity to raise the profile of adaptation across the sector and commit to action to improve health and social care resilience and ensure adaptation is built into mitigation activities.

By continuing to drive adaptation activities, including the next steps in this report, the health and care sector can deliver a climate-resilient, net zero health service.

Appendix 1: Consultation approach

Consultation method	Stakeholders engaged
Virtual meetings	• ALBs: CQC, UKHSA, NHS Digital, NHS Supply Chain, NHS Property Services • Central government agencies: DEFRA, DHSC, BEIS, Tech UK • NHS England and NHS Improvement National teams: Medicines Policy Unit, Estates and Facilities Management, Procurement, Ambulance and EPRR • NHS Trust sustainability leads • Climate Change Committee
PHE and NHS workshops on climate resilience and adaptation	• Trusts (EPRR and sustainability leads) • ALBs: CQC, UKHSA, NHS Digital, NHS Supply Chain, NHSPS • Central government agencies: DEFRA, DHSC • Primary care representatives • Social care representatives • VCSE agencies • Representative agencies (e.g: Practice Managers Network)
SDU 2019 data collection	• 249 primary and social care providers (including residential and homecare)
EPRR Deep Dive	• NHS Acute Providers • Clinical Commissioning Groups • Commissioning Support Units • NHS Community Service Providers • NHS Mental Health Providers • NHS Ambulance Trusts • NHS England and NHS Improvement National • NHS England and NHS Improvement Region • NHS111 • Other organisations delivering NHS funded care • Patient Transport Services • Specialist Providers of NHS funded care • Primary Care as directed by their NHS England and NHS Improvement Regional EPRR

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[i] World Health Organization. Social Determinants of Health. 2021

[ii] Met Office. State of the UK Climate in 2020. 2021

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