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NHS Scotland

Climate Emergency & Sustainability Strategy

2022-2026



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Foreword from the Cabinet Secretary for Health and Social Care



The climate and ecological emergency is a health emergency. Human health is inextricably linked to the health of our planet and its natural systems.

Climate change presents direct risks to human health such as extreme weather events. We only need to look at the heatwaves taking place across the world right now. But climate change also undermines the conditions that are necessary for good health. We are moving to a world of greater food and water insecurity as a result of this climate emergency.

We have a moral obligation to help tackle the greatest threat to human health by reducing our impact on the environment. Responsibility rests with us all.

Importantly, environmental and climate action can have co-benefits for health if delivered with the right intent. For example, eliminating fossil fuels can improve air quality. Air pollution causes over 6.5 million deaths each year globally, and this number is increasing.

To play our part in tackling the climate crisis, NHS Scotland is aiming to become a net-zero health service by 2040 at the latest. We are part of an international coalition of over 50 countries to date who have committed to developing low-carbon health systems.

We want to maximise our contribution to reducing emissions from the manufacture and supply of medicines and equipment and from staff, patient and visitor travel. The level of those emissions is determined by clinical decisions and models of care and so the involvement of all health professionals in efforts to improve sustainability is essential to success.

This will require unprecedented change in how we work.

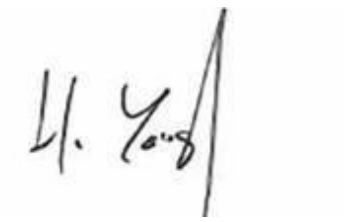
We need to establish a culture of stewardship within NHS Scotland, where resources are safeguarded and responsibly used to provide environmentally sustainable healthcare.

I've been struck by how the alignment of the principles of environmentally sustainable care support what we want to achieve in NHS Scotland. Those principles emphasise prevention, patient empowerment and self-care, lean clinical pathways and low-carbon alternatives.

Good care is environmentally sustainable care.

The risks that we face from climate change are the greatest threats to health this century. Health care emissions contribute to the climate crisis. But there are tools that we can use to make the NHS more environmentally sustainable and improve patient care. Health services and clinicians can also play a role in advocating for health promoting, environmental action in other areas such as transport and access to nature.

I am determined that we foster a new culture of stewardship - where we are mindful of the resources we use and deliver green and sustainable healthcare - better value care for the people we care for and for our system. And I think we can all play a part in achieving this.

A handwritten signature in black ink, appearing to read 'H. Yousaf', enclosed within a thin black rectangular border.

Humza Yousaf
Cabinet Secretary for Health and Social Care
August 2022

Executive Summary

Within the NHS Scotland Climate Emergency and Sustainability Strategy there are five main themes, each with associated actions and in some places targets to achieve to support our overall net-zero ambitions.

Sustainable Buildings & Land: This part of our strategy focuses on the actions we will take to help create truly sustainable NHS buildings and land.

It covers the following topics:

- reducing our building greenhouse gas emissions
- adapting our estate to climate change impacts
- embedding good environmental stewardship of our services, buildings and infrastructure assets
- reducing our waste and managing it better
- valuing, protecting and managing our greenspace
- the sustainable future development of our NHS healthcare estate

Building energy use makes up the biggest proportion of our direct greenhouse gas emissions. Limiting these emissions will have health and wellbeing benefits for our communities as well as helping Scotland's transformation to a net-zero society and limiting the harm to our environment. Increasing energy prices, particularly rising gas prices, have put the need to make the NHS estate more energy efficient into sharp focus.

Our goal is to reduce greenhouse gas emissions from our buildings by at least 75% by 2030 compared to a 1990 baseline, use renewable heating systems by 2038 for all NHS-owned buildings, and for all our estate to have net-zero emissions by 2040 or earlier where possible.

In light of the Scottish Government's aim for publically owned buildings to use zero emissions heating by 2038, this strategy also commits NHS Scotland's new facilities to either be designed to use renewable heating systems from the beginning of their use or to have a clear plan to do so by 2038 where a renewable heating system is not currently practicable.

It is essential that we act to both reduce emissions to net-zero and adapt in ways that maximise positive environmental and health co-benefits. Health Boards are making good progress with assessing climate risks and preparing adaptation plans but these need to be integrated into other strategies and risk management processes.

NHS Scotland is a custodian of significant areas of greenspace and we are committed to working with our local communities and other partners to develop and manage this public asset in a way which improves public health, reduces health inequalities and helps to address biodiversity loss and the climate emergency.

Sustainable Travel: The Sustainable Travel chapter covers the following topics:

- Reducing the need to Travel
- Promoting Active Travel
- Promoting Public and Community Transport
- Decarbonising our fleet and business travel
- Climate Change and Access

Seventeen per cent of journeys in Scotland in 2019 were under 1 km, and more than half (54%) were under 5 km – these shorter trips offer a real opportunity for a significant shift to active travel.

NHS Scotland will support this shift. By making it easier to walk, wheel, cycle and take public transport to use NHS services, we will improve access for all, particularly those with low incomes, improve health and help tackle the climate emergency. By reducing the need to travel and supporting the shift to active travel and vehicles powered by renewables, we will help improve air quality and cut carbon emissions.

NHS Scotland seeks to find the right travel solutions for each of the communities we serve, maximising health and wellbeing through both the care we give and the way it is provided. The NHS will support the Scottish Government's ambition to create twenty-minute neighbourhoods – places where things that people need for everyday life are all located within a twenty-minute walking distance.

We want all our sites, including those non-NHS sites used by primary care services, to be easily accessible for staff, patients and visitors by public or community transport. Public transport is a more physically active way of travelling than private car and has a much lower environmental impact as it is more resource efficient. Where public transport is not a realistic option, we want community-led transport and lift-sharing to be available to help people access healthcare services.

We aim to remove all fossil-fuelled small and light commercial vehicles in the NHS fleet. We will also ensure all NHS small and light commercial vehicles are powered by renewable alternatives by 2025 and no longer buy or lease large fossil-fuelled vehicles by 2030. To support the transformation of our fleet, we will continue to install electric vehicle charging points throughout the NHS estate and collaborate across the public sector on charging infrastructure.

Many of the issues associated with transport and infrastructure disruption due to climate change are outside the control of NHS Scotland but can have a considerable impact on the delivery of care. It is therefore important that Health Boards work closely with infrastructure owners and managers, Integrated Joint Boards, local authorities and The Scottish Environment Protection Agency (SEPA) to understand the risks, especially for critical routes in remote rural areas where there are no alternative routes.

Sustainable Goods and Services: We need to reduce our demand for resources and avoid accumulating waste, we need to value the resources that we do consume by designing them to last, reusing them and recycling them when they reach the end of their useful life.

This section of our strategy focuses on our actions to:

- create circularity in our supply chains and reduce waste by maximising repair and reuse
- reduce the environmental and social impacts from our supply chains
- increase the resilience of our supply chain to climate change
- improve how we deal with equipment, material and goods at the end of their useful life

To become an environmentally and socially sustainable health service we need to embrace a circular economy, using our purchasing power to encourage our suppliers to cut their greenhouse gas emissions to net-zero and limit the negative environmental and social impacts of our supply chain. The harm caused by the over-use of resources is very real but it is often hidden from sight, and there is a role for everyone in the NHS in helping to reduce these impacts.

NHS Scotland purchases £2.5 billion worth of goods and services each year from around 8000 suppliers and much of the NHS's carbon footprint is created by the manufacture and supply of medicines, chemicals, equipment and other materials.

In making decisions about the goods we procure, we will choose products which have been designed for durability, can be repaired and upgraded, and can be recycled at the end of their useful life.

To maximise our impact, we will prioritise addressing the issues with the products with the highest environmental costs and those with the greatest risks of socially unsustainable practices. We will actively work with suppliers to improve their environmental and social sustainability.

The Scottish Government has established a NHS Scotland Circular Economy Programme to support the transition to more circular supply systems. Circular systems will play a pivotal role in enabling NHS Scotland to reach net zero. We need to review and change how we procure goods and services, ensure ancillary and support systems are in place to enable greater re-use and reprocessing and work with the supply chain to help suppliers evolve and change their business models.

We have established a programme of work to reduce the amount of Personal Protective Equipment (PPE) we use, increase the use of reusable PPE within NHS Scotland and increase those items that are recycled at the end of their use (both single use and multi-use items).

Finally, our aim is to ensure that we maintain security of supply and that this is resilient to extreme weather now and in the future. Health Boards should consider their supply chains within their Climate Change Risk Assessments (CCRAs) and Adaptation Plans and ensure that appropriate measures are included to maintain security of supply.

Sustainable Care: The way we provide care can have a major impact on both our communities and the environment and is key in our transition to a net-zero health service. By changing how we plan and deliver services we can empower people to have more control over their health and deliver rapid and long-lasting change which is environmentally sustainable, increases our contribution to good health and reduces health inequalities.

Our clinicians and staff must be at the heart of NHS Scotland's climate emergency response and our efforts to become an environmentally and socially sustainable health service. This part of our strategy sets out NHS Scotland's immediate priorities for delivering more sustainable care. It covers the following topics:

- Sustainable care pathways and green health activities
- Realistic Medicine
- Medicines
- Inhalers
- Medical gases
- Green theatres
- Supporting primary care

By supporting professionals to practise Realistic Medicine and deliver personalised care, practise shared decision making and tackle unwarranted variation in health, treatment and outcomes, NHS Scotland can reduce harm and waste and deliver better value care – better value for patients and for our health and care system.

We will develop a methodology for assessing the environmental impact of different models of care to take account of their environmental impact, including greenhouse gas emissions and the sustainable use of resources, and the environmental and health co-benefits of more sustainable care models when redesigning services.

Practising Realistic Medicine has become more important than ever. It will help to deliver greener and more sustainable care. It will help foster a culture where healthcare professionals take responsibility for the resources they use, practise shared decision making and tackle unwarranted variation in order to provide better value care – better value for patients and for our system.

We are developing our Clinical Decision Support tools and guidance to promote Shared Decision Making, inform patients about their treatment and medication and provide clinicians with up to date evidence based prescribing advice. Reducing wasted medicines has a double carbon benefit as it reduces upstream emissions in manufacturing and distribution and downstream emissions as fewer medicines need to be disposed of.

The propellant used in metered dose inhalers (MDIs) prescribed for asthma and chronic obstructive pulmonary disease (COPD) are powerful greenhouse gases with global warming potentials of 1430 or 3220 times greater than CO₂ depending on the type. Around 4.5 million MDIs were dispensed in Scotland in 2020/21. We therefore aim to reduce our emissions from inhaler propellant by 70% by 2028. At that point, we will review progress before setting further targets for inhaler propellant emissions on the path to net-zero.

Anaesthetic gases are potent greenhouse gases with global warming potentials far greater than carbon dioxide. These gases are made up of desflurane, isoflurane, sevoflurane and nitrous oxide. This is an area where rapid emissions reductions are possible. Reducing the environmental impact of anaesthetic gases is a priority. Key priorities include establishing multidisciplinary project teams within Health Boards to work towards zero emissions of anaesthetic gases at each acute site within their area, working to end use of desflurane and to support trials of volatile gas capture technology to determine its efficacy in real-world situations.

Our aim is for every NHS Scotland theatre to be a Green Theatre. To support Health Boards with this, a National Green Theatre Programme is being established to provide advice and guidance. Health Boards will adopt the learning from NHS Highland's Green Theatre Project.

Health Boards and Health and Social Care Partnerships will work closely together with each other and NHS independent contractors (General Practitioners (GPs), dentists, community pharmacies and optometrists) to both minimise the environmental impact of primary care services and maximise the benefits to health and the environment.

Sustainable Communities: This section of our strategy includes:

- Supporting health and wellbeing
- Building community resilience
- Engaging our communities

The growing threat to public health from the climate emergency increases the need for action. We all have a clear responsibility to respond in a way that nurtures good health for the population and the planet.

The climate emergency undermines the foundations of good health and deepens inequalities for our most deprived communities. The NHS touches every community in Scotland. We have a responsibility to use our abilities as a large employer, a major buyer, and one of the most recognised brands in the world – an 'anchor' organisation – to protect and support our communities' health in every way that we can. We will work together with our partners, including local authorities and Public Health Scotland, to bring sustainability, better health and fairness to all communities.

For people to stay healthy, we need to keep our planet healthy. Increasing scientific evidence shows that the climate and nature emergency is harming human health in a variety of ways. For example, the threat from air pollution (due to harmful emissions from transport and buildings), heat-related illness and mortality, increased prevalence of vector-borne disease, physical injuries and the mental health impacts associated with climate-related events such as flooding.

Rural and urban green spaces, such as parks, playgrounds, and gardens, can promote mental and physical health by reducing stress, supporting physical activity, and enabling people to come together. They can also help reduce exposure to the damaging effects of air pollution, noise, and excessive heat. Good access to high quality services, active travel options and sustainable, resilient public transport also

contribute to health, and we will work to support this both on our own sites, and beyond them.

We will work with our partners to support and encourage improvements in planning, housing and transport that recognise the potential impacts of climate change on health and to ensure that different population groups in society are not further disadvantaged.

The actions set out in this strategy will also help to support the necessary behavioural changes needed by our staff, patients and local communities in contributing to social and environmental sustainability and reaching net-zero.

About this Strategy

1. This document sets out the approach and actions which will be taken by NHS Scotland, with support from the Scottish Government and working in partnership with others, to respond to the climate emergency and to contribute towards the achievement of the United Nations' (UN) Sustainable Development Goals (SDGs). This document focuses on improving the environmental sustainability of the NHS while also recognising the role that the NHS has in relation to the UN SDGs relating to social and economic development.

2. The document covers the period 2022 to 2026. It sets out actions which will either begin in that period, be completed during it, or are already underway and will continue during that time. It also sets out aims and targets for the NHS which go beyond 2026. The actions in this strategy are directed at achieving the aims and targets set by the Scottish Government for NHS Scotland in DL (2021) 38: 'A Policy for NHS Scotland on the Climate Emergency and Sustainable Development'.¹

3. Delivery of this strategy will be supported by the Scottish Government's Care & Wellbeing Portfolio. Through the Portfolio, we are working to bring together key reforms into a single coherent portfolio to improve population health and wellbeing, reduce health inequalities and improve the sustainability of the health and social care system. We are looking to create the best environment to stimulate national and local action to tackle these issues and take a systematic approach to planning and delivering care and wellbeing. The Portfolio's objectives are focused on coherence, sustainability and improved outcomes. Climate change and net zero are one of the Portfolio's priority areas.

Our Ambition and Approach

'Climate change poses a catastrophic threat to humanity and the natural systems that underpin our lives. It is obvious that tackling climate change will have a positive impact on human health'.²

"We are at a crossroads. The decisions we make now can secure a liveable future. We have the tools and know-how required to limit warming".³

Introduction

4. The need to act to address the triple planetary crises of climate change, pollution and biodiversity loss is clear and pressing. In recognition of this, NHS Scotland became the first national health service in the UK to commit to becoming a net-zero organisation.⁴ Since then, a further 18 countries have committed to net zero health service targets and 52 countries globally have committed to low carbon, sustainable health care systems.

5. But like all sectors of society, we need to accelerate our efforts to cut our greenhouse gas emissions and become environmentally sustainable. We have therefore brought forward our target date for achieving net-zero emissions from 2045 to 2040. Our efforts to reduce emissions need to be as rapid as possible, since earlier mitigation reduces the scale of change required and, as climate

breakdown progresses, impacts on critical infrastructure will impede emissions reduction efforts. We recognise that, where possible, changes should be prioritised and action initiated before 2025-2030 to ensure effective delivery. The cost of inaction or delay will dwarf the cost of action on climate and biodiversity, and increase the burden of chronic disease and the need for increasingly urgent actions to limit emissions.⁵

6. The case for the health service to act is about more than simply playing our part. The threats to human health from the climate emergency, both in Scotland and globally, are so serious that climate change has been described by the Lancet Commission on Managing the Health Effects of Climate Change as “*the biggest global health threat of the 21st century*”.⁶
7. At the same time, many of the actions needed in response to the climate emergency and the environmental crisis have positive health impacts if delivered with that intent. Cutting emissions, enabling active travel, restoring biodiversity and improving air quality can prevent diseases such as asthma, pneumonia, heart attacks and stroke. Well-insulated buildings can save lives and prevent illnesses as well as reducing energy consumption and fuel poverty. Eliminating medicine residues from wastewater prevents harm to biodiversity and limits the development of antimicrobial resistance (AMR), one of the most serious threats to our ability to treat illness. The direct and indirect health benefits are so great that tackling climate change has also been described by the Lancet Commission as “*the greatest global health **opportunity** of the 21st century*”.⁷
8. The Scottish Government is committed to a just transition away from a fossil-fuel based economy. This means making the journey towards a net zero and climate resilient economy in a way that delivers fairness and addresses inequality and poverty. Climate change, pollution, biodiversity loss, sustainability, health and health inequalities are inextricably linked. Tackling the climate emergency in a just and fair way will avoid making health inequalities worse and has the potential to reduce them.
9. As an organisation dedicated to improving and protecting physical and mental health and wellbeing, our National Health Service must be in the vanguard of efforts to tackle the climate emergency and the environmental crisis.
10. NHS Scotland has shown throughout the Covid-19 pandemic that it can act quickly in a crisis. The climate emergency and environmental crisis requires urgent action.

Our Aims

11. Our ambition is to become a service which is both environmentally and socially sustainable. A health service that improves the environment, opportunities, life chances, health and wellbeing of every citizen in our country. One that fully contributes to a more cohesive, resilient and net-zero society, and contributes to the Care & Wellbeing Portfolio’s mission to improve population health, population wellbeing and reduce health inequalities. To do this, NHS Scotland aims to collectively:

- ensure that we, as an integral part of our communities, contribute to the achievement of the UN SDGs and national outcomes for health
 - become a net-zero greenhouse gas emissions health service by 2040 or earlier
 - make our assets and activities more resilient to the impacts of a changing climate, particularly extreme weather events
 - establish a culture of stewardship, where we safeguard and responsibly use resources to provide environmentally sustainable healthcare
 - establish NHS Scotland as part of the circular economy through designing out waste and pollution, keeping products and materials in use and contributing to the regeneration of natural systems
 - increase our contribution to tackling the ecological emergency and restoring biodiversity
12. To achieve these aims, we need the help of everyone across the whole of NHS Scotland. Many are already taking action to help create a more sustainable NHS and others have great ideas to share. We need to support the energy and enthusiasm of our people and give them the resources and backing they need to make the changes our communities and the world need. We need to build on the great work which has already been done and accelerate activity to scale it up across the whole of NHS Scotland.

Delivering the UN SDGs and a Just Transition

13. Sustainable development, the concept that human needs must be met within the limits of natural systems, has a crucial role to play in ensuring a better quality of life for everyone.
14. In 2015, all UN Member States adopted the 2030 Agenda for Sustainable Development; a shared blueprint with the 17 SDGs at its heart. The SDGs are a call for action by all countries to promote prosperity while protecting the planet. They recognise that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and protecting the environment.
15. The Scottish Government has embedded the SDGs within the current National Performance Framework (NPF). The NPF sets out a vision for Scotland across a range of social, economic and environmental factors. It highlights the need for a 'whole system approach' to successfully deliver the national outcomes for health and recognises the important role that NHS Scotland has in helping to achieve this, ensuring quality healthcare services are available and accessible to all.
16. The Scottish Government is committed to working across all sectors of our society to deliver lasting action that secures a just transition to a climate resilient and net zero future. This means delivering on our social, economic and climate goals in a way that harnesses the opportunities and navigates the challenges that the transition to net zero presents across all sectors of the economy, including healthcare, to build a better and more equal Scotland.

17. To ensure an orderly, managed transition, Scottish Government has set out a National Just Transition Planning Framework with eight National Just Transition Outcomes.⁸ The Framework and Outcomes will allow a consistent and ambitious approach to planning, increasing our ability to achieve the transformational change necessary to meet our climate targets.

18. NHS Scotland is committed to supporting a just transition to net zero and progress on meeting the SDGs and national outcomes in Scotland. In addition to our commitment to living and working within the limits of the natural environment, our actions to create a sustainable health service are also informed by the following just transition principles:

- plan, invest and implement a transition to an environmentally and socially sustainable, climate resilient, health service in a way which builds on Scotland’s economic and workforce strengths and potential
- create opportunities to develop resource efficient and sustainable approaches which help address inequality and poverty
- design and deliver low carbon and climate resilient investment and infrastructure making all possible efforts to create decent, fair and high value work

SUSTAINABLE DEVELOPMENT GOALS



Figure 1: The Sustainable Development Goals

The National Performance Framework



Figure 2: The National Performance Framework

Working in partnership

19. NHS Scotland cannot deliver its sustainability aims on its own. We also need to work closely with local communities, local authorities, patients, health care unions, other public bodies, third sector organisations, the private sector and academia to achieve them. We will actively engage in existing forums for collaboration and assist in creating new ones where they are needed. Some examples of where collaboration are needed is the creation of district energy networks and the implementation of sustainable transport to NHS sites.

20. Actions to improve the sustainability of our NHS will be delivered by Health Boards and Integrated Joint Boards working in partnership with Community Planning Partnerships and Regional and Local Resilience Partnerships and the communities they serve. This strategy provides the vision and objectives for the NHS setting out high level requirements and examples of good practice, recognising that action on the ground will depend on local circumstances and the specific sustainability challenges and opportunities that individual health and care organisations face.

Our role as an anchor organisation

21. Anchor organisations are one of the specific focuses of the Place & Wellbeing programme within the Scottish Government’s Care & Wellbeing Portfolio. We are committed to acting for the benefit of the local communities we serve and recognise that we can positively contribute to local areas in many ways beyond providing healthcare. Our strategy will make a difference to local people including our staff through working more closely with our local partners to use our buildings and spaces for social benefit, providing opportunities for recreation and physical activity, improving access to high quality outdoor space, making local sourcing possible, and reducing our environmental impact.
22. We also recognise the NHS’s role as an anchor organisation for Scotland as a whole. We recognise that there is the potential for our efforts to reach net-zero to provide an exemplar for other sectors of the country.⁹ As anchor organisations, NHS bodies have an unrivalled opportunity to model the sustainability goals around fair employment, gender equality and sustainable communities and in so doing tackling inequalities.

Reporting our Progress

23. We want to have as accurate an understanding of our carbon footprint, environmental impact and our contribution to the UN SDGs as possible. We want this information to be accessible and published in a format which is easily understandable for our local communities, patients and staff.

Where we are now

NHS Scotland has developed a National Sustainability Assessment Tool (NSAT) which all Health Boards use on an annual basis to measure their progress across sixteen different areas of sustainability. We will continue to use this tool to assess progress on the actions set out in this strategy and our contribution to the UN SDGs and national outcomes.

NHS Scotland also reports against a number of statutory targets such as reductions in greenhouse gas emissions and biodiversity. Nineteen health boards are required to prepare annual climate change reports under the Climate Change (Scotland) Act.

24. Starting in November 2022, each Health Board will publish an annual report, approved by its Chief Executive, summarising its progress against the aims and targets set out in “A Policy for NHS Scotland on the Climate Emergency and Sustainable Development” (DL (2021) 38) and the actions set out in this strategy.
25. The annual report will include the Health Board’s NSAT score and highlight any examples of best practice which could be adopted across the whole of NHS Scotland. These reports will form a key part of each Health Board’s annual ministerial review.

26. Starting in 2023, we will publish an annual NHS Scotland Climate Emergency and Sustainability Report setting out the progress being made across all of NHS Scotland in implementing this strategy.

Our approach to Net-Zero

27. We aim for NHS Scotland to become a net-zero organisation by 2040 or earlier for the following sources of NHS emissions:

- building fossil-fuel energy use
- owned and leased fleet fuel use
- fluorinated gases and anaesthetic gases
- purchased energy use (electricity, heat, steam)
- energy transmission and distribution
- waste
- water consumption
- waste water treatment
- business travel, including the use of grey fleet

28. We also aim to maximise our contribution to Scotland and our supply chain achieving net-zero emissions by 2045. This covers the following sources which the NHS does not control but which it can influence:

- Supply chain
- Staff commuting
- Patient and visitor travel

29. Our approach to net-zero is not based on carbon off-setting. The UK's independent, statutory Climate Change Committee advises that most sectors will need to reduce emissions close to zero without offsetting. We are, therefore, working to bring our emissions as close as possible to zero as early as we can. The UK Government forecasts that the electricity grid will produce 15 gCO_{2e} for every kWh produced in 2040, falling to 7g by 2048.¹⁰ NHS Scotland's activities will still result in some residual emissions by that point and some form of off-setting will be required. But our pressing task now is to rapidly reduce our emissions as much as possible and how to off-set residual emissions is for a later date.

The NHS Scotland Carbon footprint

30. Our knowledge of the NHS Scotland carbon footprint is still developing. We have excellent data for some emissions sources but little or inaccurate data for others. The following table sets out known NHS Scotland emissions for 2020/21:

Source	Tonnes of carbon dioxide equivalent (tCO _{2e})
Building energy use	431,000
Metered dose inhaler propellant (fluorinated gases)	79,000

NHS Fleet	60,000 (data incomplete)
Anaesthetic gases	27,000
Waste	6,900 (data incomplete)
Waste water treatment	3,200
Water consumption	1,600
Total	608,700

31. We recognise that there are gaps in the data for our 2040 targets and we have started work to improve the quality and comprehensiveness of that data. There is a lack of consistency in the information that Health Boards provide in their statutory annual climate change reports and three Health Boards are not currently required to provide them. Starting in 2022, all Health Boards bodies will report on their greenhouse gas emissions which are subject to the 2040 target.
32. Two of the major gaps we have in accurately setting out the NHS’s carbon footprint is the supply chain and staff, patient and visitor travel. NHS England has estimated that its supply chain makes up 62% of its total carbon footprint using a spend-based method.¹¹ There are limitations to spend-based methods for calculating emissions and they are very much a broad-brush approach. However, it is undoubtedly the case that the supply chain is a very large source of emissions and is most likely the largest single element in the NHS carbon footprint. Our plans to improve our understanding of supply chain emissions are set out in the chapter on Sustainable Goods and Services.
33. There are also challenges with assessing the emissions resulting from staff, patients and visitors travelling to and from NHS services and facilities. What we do know is that domestic transport is the sector which produces the most greenhouse gas emissions in Scotland (29% of the total for 2019¹²) and that car travel is the mode of travel which produces the most emissions (38% of Scotland’s transport emissions).¹³ Our plans to improve our understanding of how staff, patients and visitors travel to NHS sites are set out in the chapter on Sustainable Travel.
34. Further data on NHS Scotland’s carbon footprint and environmental impacts is set out in Annex B.

Our People

‘The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide’.¹⁴

35. NHS Scotland has made progress in creating a more sustainable health service but more still needs to be done. Much of the work has been taken forward by Health Board Sustainability Managers or local teams who have taken the initiative to make positive changes. We need to support our people so that sustainability

becomes everyone's responsibility and help them build on the good work which has been done already.

Leadership

36. People need to know that they will have the backing of senior managers and executives when they take the initiative to make changes for the better. Business as usual is not enough. Senior leaders have to provide their energy and allocate resources to support improvements to sustainability. Leadership does not just come from the top. The health service is full of talented people at all levels who are taking the lead on making the health service more sustainable.
37. To ensure all levels of the NHS are involved and actively contributing to meeting our climate and sustainability aims, each Health Board will, where it hasn't already:
- appoint a Climate Emergency and Sustainability Champion from amongst its Board members
 - appoint an executive lead for its Climate Emergency and Sustainability response
 - ensure that environmental impacts are taken into account in decision making
 - ensure that its progress in responding to the climate emergency and sustainability issues is regularly considered by its Board
 - establish a strong governance structure for implementing this strategy and achieving its aims, ensuring that those aims and their local sustainability strategies are fully integrated into all planning, management decisions and operational practices across the organisation
38. At a national level, we will develop training on climate literacy and sustainability which will be mandatory for senior NHS managers and prepare and co-ordinate other training opportunities.

Working together

39. Each Health Board will put in place a Climate Emergency Response and Sustainability Team with the right resources to help the Health Board deal with the challenges of decarbonisation, climate resilience and environmental sustainability that it faces. That team will report directly to the Board with the executive lead holding overall responsibility for its performance. We will ensure that NHS Climate Emergency Response and Sustainability Teams have the authority, resources, training and skills they need.
40. Significant greenhouse gas emissions arise from the manufacture and supply of medicines and equipment and from staff, patient and visitor travel. The level of those emissions is determined by clinical decisions and models of care and so the involvement of all health professionals in efforts to improve sustainability is essential to success.

41. Each Health Board which provides clinical services, will establish a sustainable care clinical planning team as a core part of its Climate Emergency Response Team, to work in collaboration with members from other disciplines. These teams will work with other clinicians across the NHS to help make clinical services environmentally friendly.
42. The size and skills of each Health Board's Climate Emergency Response Team will depend on the scale of the challenge faced by that Health Board. Some national Health Boards are very small and their staff work in offices or from home while, at the other end of the scale, NHS Greater Glasgow and Clyde is the largest NHS organisation in the UK. Because of these differences, this strategy does not prescribe the precise composition of each Climate Emergency Response Team. Staff will be provided with protected time to participate in this team.
43. The wider workforce needs to be mobilised and supported to improve sustainability. All Health Boards will put in place mechanisms for front-line staff to share ideas with their Climate Emergency Response and Sustainability Teams. We will work to incorporate planetary health and environmental sustainability as a core component of the education and training of all NHS staff, at all career stages and develop a Climate Emergency Module to sit alongside the training module on shared decision making which has been developed to help ensure better value care is provided – for patients and for the system, reducing waste and harm.
44. To support senior leaders and staff to share best practice and better understand what they can do to promote sustainable development, NHS National Services Scotland will establish an NHS Scotland Sustainability Network. This will provide opportunities for peer mentoring and support as well as sharing best practice and the latest developments in sustainability.
45. An engaged NHS workforce will be key to delivering our aspirations of providing a truly sustainable health service, as will the support of the public generally. Climate change is a major concern for the UK public, with four in five people agreeing that it is a global emergency. Engaging our communities as we accelerate our action to tackle the climate emergency is a key theme of this strategy.
46. Unabated, the climate crisis will continue to disrupt care and affect patients and the public at every stage of our lives. While there are many barriers to overcome (an aging demographic profile, health inequalities, waiting lists, tightening public health budgets, a workforce crisis, environmental stressors which exacerbate health problems to name a few), ultimately the actions set out in this strategy will support other health system priorities.

Raising awareness

47. Awareness of the importance of the climate emergency and sustainability has never been greater but it can still be challenging to know how we can make a difference. A wide range of staff across NHS Scotland were involved in creating the 'Sustainability Action' brand 'Our NHS, Our People, Our Planet'. All NHS staff have access to the resources that have been developed to help drive forward action on climate change and sustainability. These can be found on the [NHS Scotland Sustainability Action Website](#).
48. To help raise awareness, each Health Board will develop and implement communications plans to help staff, patients and visitors to take sustainable action and raise awareness of its own plans, actions and progress in developing a more sustainable health service.

Our Priority Areas

49. This strategy sets out what we plan to do between now and 2026, and what our longer term aims are, across the following five priority areas for NHS Scotland:
- Sustainable Buildings & Land
 - Sustainable Travel
 - Sustainable Goods & Services
 - Sustainable Care
 - Sustainable Communities
50. To effectively deliver our environmental and social sustainability aims, the strategy should work alongside other NHS Scotland and Health Board strategies and initiatives. By taking an integrated approach and working in partnership, we will be better able to create a sustainable health service. The challenges we face are all connected and so our solutions must be as well.

Sustainable Buildings & Land

51. We are committed to creating healthy, inclusive, resilient and nature-rich healthcare environments that nurture good health and wellbeing for patients, staff and the wider community and minimise our impact on the environment.
52. NHS Scotland currently has 1,250 buildings covering around 4.7 million square metres. In many cases, these buildings are part of larger estates rich in greenspace, parks and woodlands. The Scottish Government has made a commitment to invest £10 billion over the next decade to renew the estate and refurbish and replace health facilities.⁶ This investment programme will provide opportunities for creating truly sustainable healthcare facilities which; minimise the impact of their construction and operation on the environment and finite resources, reduce our dependence on fossil fuels, are resilient to climate change, and create healthy and inclusive internal and external environments.
53. This part of our strategy focuses on the actions we will take to help create truly sustainable NHS buildings and land. It covers the following topics:
- reducing our building greenhouse gas emissions
 - adapting our estate to climate change impacts
 - embedding good environmental stewardship of our services, buildings and infrastructure assets
 - valuing, protecting and managing our greenspace
 - the sustainable future development of our NHS healthcare estate

Reducing our building emissions

“Limiting human-induced global warming to a specific level requires limiting cumulative CO₂ emissions, reaching at least net-zero CO₂ emissions, along with strong reductions in other greenhouse gas emissions”.¹⁵

“We see examples of zero energy or zero-carbon buildings in almost all climates. Action in this decade is critical to capture the mitigation potential of buildings”.¹⁶

54. Building energy use makes up the biggest proportion of our 2040 net-zero emissions target. Limiting these emissions will have health and wellbeing benefits for our communities as well as helping Scotland’s transformation to a net-zero society and limiting the harm to our environment. The benefits of acting quickly are clear – our aim is to reduce our cumulative greenhouse gas emissions as every tonne emitted adds to the climate and nature emergency.

Where we are now

In financial year 2020/21, NHS buildings accounted for the equivalent of around 430,000 tonnes of CO₂ emissions and consumed almost 2TWh of energy. Between 1990 and 2020/21, NHS Scotland's local Health Boards reduced their greenhouse gas emissions associated with building energy use by 63.9%. These reductions have largely been achieved by the switch to gas heating from heavy fuel oil and coal, the on-going decarbonisation of the electricity grid and energy efficiency measures adopted by Health Boards. We now face the significant task of moving away completely from fossil fuel sources of heat.

The Scottish Government has committed to all publicly owned buildings meeting zero emission heating requirements by 2038, with a series of interim targets to be established by 2024. As NHS Scotland's direct emissions are largely from heating, this means an acceleration of our efforts to eliminate greenhouse gas emissions. In addition, the UK Government aims for all electricity to be from renewable sources by 2035.

55. Our goal is to reduce greenhouse gas emissions from our buildings by at least 75% compared to a 1990 baseline, use renewable heating systems by 2038 for all NHS-owned buildings, and for all our estate to have net-zero emissions by 2040 or earlier where possible. The need to limit cumulative greenhouse gas emissions and to use renewable heating by 2038 means that we must take steps now to put us in as strong a position as possible to achieve this goal.
56. We will reduce our energy consumption through efficiency measures (set out in Annex A to this strategy) and replace fossil fuel heating with renewable heat sources and electricity. Increasing energy prices, particularly rising gas prices, have put the need to make the NHS estate more energy efficient into sharp focus. Rapid increases in energy prices are putting significant financial pressures on people and organisations across the country and the NHS is no exception.
57. Energy efficiency is not just vital to reducing greenhouse gas emissions and tackling the climate emergency, it is vital to the day-to-day running of the NHS. We estimate that without the energy efficiency measures taken between 2015/16 and 2020/21, NHS Scotland's electricity costs would have been £17 million higher in 2020/21 than they actually were. There is, however, much more that can be done to make the NHS estate more energy efficient for both heat and electricity. In taking this action, we will work towards the international standard for energy management systems, the ISO 50001 standard.
58. The Scottish Government is funding the preparation of net-zero route maps for Health Boards with the aim of completing them by the end of 2022. These route maps will set out options for achieving zero emissions from heating by 2038 and net-zero greenhouse gas emissions by 2040 at the latest. Those route-maps will be used by Health Boards to plan their energy transitions and the timing of major investments will be co-ordinated at a national level. All Health Boards are required to have Property and Asset Management Strategies (PAMS) and will ensure that

the need to meet decarbonisation targets and adapt to climate change drives the development and implementation of those strategies.

59. The preferred renewable heating system for each NHS site will depend on local circumstances. It is likely that NHS Scotland will use systems such as air, ground and water source heat pumps, zero-carbon district heat networks and hydrogen depending on the site. Geothermal and other renewable resources may also be considered. We also need to ensure that our facilities are resilient to a loss of power and this means that we may need to use fossil-fuel back-up generators in case of power failures until a sustainable alternative is available.
60. Currently available renewable heating systems are most efficient with low temperature hot water systems. However, much of the existing NHS estate uses steam or high temperature hot water systems for heating. Switching hospital buildings over to low temperature hot water systems requires careful planning – heat panels, radiators and pipework need to be replaced in buildings which operate 24 hours a day, 365 days a year. This is why work needs to begin now to prepare and implement our plans so that all NHS owned buildings will use renewable heating systems by 2038.
61. There are still a small number of NHS facilities which use oil heating as they are off the gas grid. Those facilities are an early priority for switching to renewable heating. We will also identify other sites which can be quickly switched to renewable heating and implement the change.
62. The Scottish Government's Heat in Buildings Strategy sets out that its Green Public Sector Estate Decarbonisation scheme will invest a minimum of £200 million between 2021-2026 in public sector energy efficiency and decarbonisation improvements. Health Boards have successfully applied for funding in the first round of that scheme and will be supported to apply to future rounds as well.
63. A number of Health Boards lease office space. These Health Boards will take into account carbon emissions when assessing their property options when they are considering whether to renew a lease or enter into a lease for a different property. These property appraisals will consider emissions associated with the building and those arising from staff travelling to it. The Scottish Government will update the NHS Scotland Property Transactions Handbook to ensure that priority is given to zero and low carbon property solutions.
64. The shift to a net-zero society will also create new opportunities for renewable heat and electricity providers. We will explore opportunities to contribute to this transition through the greater use of roofs and immediate grounds for green energy technologies. We will also explore options for entering into Power Purchase Agreements and Heat Purchase Agreements. This work will include identifying appropriate procurement and contract options to ensure continuity of supply.

65. The supply of water and the treatment of waste water contributes around 5000 tonnes of NHS Scotland's greenhouse gas emissions compared to around 430,000 tonnes from energy use in 2020/21. While those emissions are relatively small, we need to reduce them further to become a net-zero service. In addition, periods of water scarcity are likely to increase as the climate changes and reducing our water use is an important aspect of adapting to the new conditions.

Actions we will take

66. To accelerate our action on reducing carbon emissions from buildings, Health Boards will:

- ✓ prepare and implement net-zero route maps to use renewable heat for all our owned buildings by 2038 and achieve net-zero emissions for all our buildings by 2040 or earlier where possible
- ✓ use PAMS to support decarbonisation and adaptation
- ✓ take action to improve energy efficiency including those set out in Annex A and conform with ISO 50001 or equivalent
- ✓ apply to the £200 million Green Public Sector Estate Decarbonisation Fund
- ✓ take account of carbon emissions when evaluating options for leasing buildings
- ✓ maximise the use of renewable electricity including better use of roofs and adjacent grounds for on-site renewable energy and heat generation
- ✓ with the Scottish Government, explore options for entering into power purchase agreements and heat purchase agreements with local renewable electricity and heat providers
- ✓ identify and implement measures to improve water efficiency

Adapting to climate change impacts

'The science is unequivocal: a global increase of 1.5° C above the pre-industrial average and the continued loss of biodiversity risk catastrophic harm to health that will be impossible to reverse'.¹⁷

67. The resilience of our estate is vital to ensuring the delivery of health and care services without disruption. Climate change and severe weather events are already impacting buildings, services, health, transport, water resources and energy demands and will have more severe impacts irrespective of mitigation efforts. Projected climate change trends for Scotland will mean increased flooding, extreme temperatures and more extreme weather events. We need to take urgent action now to protect sites, services and communities.

Where we are now

Emergency preparedness and resilience is paramount for the NHS in Scotland. The increasing frequency of disruptive events, including extreme weather conditions, underlines its necessity. The Civil Contingencies Act (2004) requires NHS organisations, and providers of NHS funded care, to show that they can deal with such incidents while maintaining services. The NHSScotland Organisational Standards for Resilience sets out a standard for Health Boards to identify and ensure preparedness for worsening climate change impacts. A web based Geographic Information System (GIS) climate change hazard and vulnerability mapping tool enables Health Boards to assess risks to sites, key transport and access routes, and supporting infrastructure based on current and projected future climate conditions.

68. NHS Scotland Chief Executives committed to preparing a Change Risk Assessment and Adaptation Plan by the end of the 2021/22 financial year. The NHS Scotland Climate Change Risk Assessment and Adaptation Planning Tool for Healthcare Assets supports this work. Climate Change Impact Assessments have also been prepared for each of the twenty-two Health Boards to identify current and future key climate risks. These provide a high-level assessment of previous climate events and set out affected assets and operations, current risks and the potential future risks that could be faced taking into account current climate change projections. Flooding and overheating are the climate risks most likely to have the biggest effect on the estate and operations of NHS Scotland as well as increasing patient demand.
69. Flooding is identified as one of the most severe climate risks for Scotland in the Climate Change Committee's Independent Assessment of UK Climate Risk.¹⁸ This is already having an impact on health services. For example, a flooding event in Perthshire caused patients to be cut off for a week. Over 400 health and social care assets in Scotland are at risk of frequent flooding, and this number is likely to increase in the future even if global warming is kept to below 2°C.
70. The number and length of heatwave events has increased throughout the UK and is projected to continue to do so. Overheating in Scotland's hospitals has been identified as a key risk with 90% of UK hospital wards at risk of overheating in hot weather and no system for reporting overheating in NHS facilities.¹⁹
71. With projections for reduced summer rainfall, periods of water scarcity are likely to become more prevalent in the future with the long-term sustainability of private water supplies a particular challenge in Scotland. Climate risks to building fabric include excessive moisture due to flooding and heavy rain and structural damage due to high winds. Landslides are also an increasing risk associated with heavy rainfall events.
72. Indirect effects will occur through the detrimental impacts of extreme weather on people's health and wellbeing, which will increase demand for services. These impacts will be felt not only within institutional settings, such as hospitals, residential and nursing homes, and respite centres, but will also affect people who

receive care services in their own homes and may prevent people from accessing critical services.

73. Measures to adapt to changing climate conditions have the potential to increase greenhouse gas emissions, for example cooling and heating buildings. Measures to reduce emissions can also be adversely impacted by climate change. It is essential that we act to both reduce emissions to net-zero and adapt in ways that maximise positive environmental and health co-benefits. For example, increases in trees and plants captures carbon as well as providing shading and helping to reduce flood risk. It also encourages people to spend more time outside and adopt active travel choices, improving air quality and promoting healthier lives.
74. Health Boards are making good progress with assessing climate risks and preparing adaptation plans but these need to be integrated into other strategies and risk management processes. In addition, they must be resourced and implemented to minimise risks to people, buildings, supporting infrastructure and the supply chain. Adaptive capacity will be improved by following best practice as set out in the international standard on adaptation ISO 14090. Health Boards will integrate the parts of their adaptation plans which relate to the NHS estate into their PAMS.
75. Adaptation Plans should be developed on a cross-departmental basis including the involvement of Integrated Joint Boards, Community Planning Partnerships, Public Health Scotland, local authorities and Regional and Local Resilience Partnerships. Cross-boundary issues and wider interdependencies should also be considered with neighbouring bodies and wider stakeholders such as Network Rail, Transport Scotland, Scottish Water and SEPA.
76. Whilst individual Board adaptation plans will address the issues relevant to their local context, flooding, overheating (as well as continuing to manage cold weather), high winds, storms and water scarcity have been identified as the key climate hazards for Scotland by the most recent Independent Assessment of UK Climate Risk. Adaptation plans will identify specific actions to reduce the potential impacts of those risks.

Actions we will take

77. To help protect sites, services and communities from the impacts of climate change, Health Boards will:
 - ✓ conduct CCRA's covering all areas of service, ensuring integration with other strategies (including PAMS), risk assessments and business continuity plans
 - ✓ prepare and implement climate change adaptations plan to ensure resilience of service under changing climate conditions
 - ✓ work towards the requirements of ISO 14090: Adaptation to climate change

- ✓ input to the development of wider adaptation strategies and related activity including local authority open space strategies

78. To address impacts from the risk of flooding, overheating and water scarcity we will:

- ✓ assess the risk of flooding for all sites, key transport and access routes, supporting infrastructure and workforce based on current and future projected climate conditions
- ✓ prioritise passive cooling measures over mechanical cooling wherever possible.
- ✓ establish a programme of monitoring to capture data that will enable a robust assessment of the nature and severity of overheating at in-patient facilities
- ✓ incorporate water saving measures wherever possible
- ✓ develop and manage greenspace and other green infrastructure such as green roofs and rain gardens to mitigate flood and overheating risks
- ✓ raise awareness of the potential for flooding, overheating and actions that can be taken by staff, patients, visitors and contractors

Good environmental stewardship

79. Health Boards operate and maintain a diverse range of services, buildings and infrastructure assets which are essential to the delivery of health services. If they are not maintained and managed effectively, they risk causing harm to the environment. Environmental risks can include discharge of pollutants to air, land or water and the unsustainable management of waste either by generating unnecessary waste or by not taking due care when treating, recycling and disposing of it. These risks can affect our environment locally, nationally and globally. Examples of risks include oil storage tanks, liquid fuel storage and laundry service operations.

Where we are now

NHS Scotland has developed and implemented a range of tools to measure and monitor specific environmental indicators including eSight (used to monitor energy consumption), the Statutory Compliance and Risk Tool (SCART), the NSAT and the Waste Data Reporting Tool.

In 2021, we launched a new Environmental Management System (EMS) which Health Boards can use to identify environmental risks, assess the likelihood and scale of impacts, identify mitigation measures and prioritise actions. The EMS incorporates a legal register which assists Health Boards in tracking their compliance with environmental legislation.

80. We must effectively manage environmental risks and foster a culture of continuous improvement to prevent environmental harm and ensure compliance

with legal requirements. Other benefits include reduced breakdowns of equipment, reduced service disruption, improved staff awareness, reduced unforeseen costs, and reduction of associated risks to human health.

81. It is critical that environmental risk and compliance is managed at the highest level in the organisation, and that the necessary budgets and resources are assigned to environmental audits, repairs and upgrades to ensure continuous improvement. Health Boards need to cascade environmental management across all departments to reduce the impact on the environment and wherever possible contribute positively to the local environment and biodiversity. Adopting best practice as set out in the international standard on environmental management ISO 14001 will reduce environmental risks.
82. Each Health Board will embed an EMS across the organisation and fully integrate environmental performance into all relevant governance and financial and non-financial reporting processes.

Waste management

83. Our goal is to reduce our waste and manage it better. NHS Scotland is working to achieve the following by 2025:
 - reduce domestic waste by a minimum of 15%, and greater where possible, compared to 2012/13
 - ensure that no more than 5%, and less where possible, of all its domestic waste goes to landfill
 - reduce the food waste it produces by 33% compared to 2015/16
 - ensure that 70% of all its domestic waste is recycled or composted
84. In addition, each Health Board should set appropriate targets for reducing the volume of clinical waste it produces through measures including greater use of reusable items, improvements to waste segregation and increased recycling of recyclable materials. We will review the need for a national target for clinical waste reduction.
85. Health Board waste management officers should ensure that arrangements are in place for the safe treatment and disposal of all waste streams (clinical and non-clinical waste). The waste hierarchy should be embedded within all waste collection and treatment contracts. Health Boards should ensure that waste data is recorded and monitored, and opportunities to reduce waste and maximise reuse and recycling are identified and implemented.
86. Recently, progress has been made to improve our waste data, however, more needs to be done to capture 100% of our data and use it to identify opportunities to minimise consumption of resources and reduce our environmental impact associated with waste.
87. Waste management officers and their teams are critical to reducing the environmental and financial impacts on the NHS of the waste it produces. We will

invest in those teams, ensuring that they have the authority, resources, training and skills they need.

88. Similar to the complexities and variations associated with household waste and recycling collections, we recognise that our waste collection policies are not fully understood by all of our staff. Anecdotally, we understand that staff are confused about which materials they should segregate for recycling and which items should be segregated as clinical waste.
89. Some of the key successes in our waste performance have been driven by individual staff members at a local level. We have the opportunity to motivate staff to value our wasted resources by benchmarking performance, communicating instructions clearly and letting them know about the positive impacts that they have had.
90. To help with this, we will regularly communicate with staff about initiatives to reduce our waste, improve waste segregation and recycle more. This year, we will launch the first of our NHS Scotland-wide communication campaigns.

Water stewardship

91. Pollution in the form of medicines and micro-plastics enter the natural environment through NHS waste water. There are local examples where Health Boards have been at the forefront of innovation in water stewardship. NHS Highland, working with the [One Health Breakthrough Partnership](#), delivered a project at Caithness General Hospital in Wick which was awarded the Alliance of Water Stewardship (AWS) standard.
92. The project aimed to reduce the pollution caused by medicines emanating from the hospital on aquatic ecosystems and involved carrying out an in-depth analysis of changes in the quality of water from its source, Loch Calder, to Caithness General Hospital and onwards to the local wastewater treatment plant. It is thought that that between 30 and 100 per cent of all medicines taken orally can be excreted into the waste-water system as an active substance or metabolites in urine and faeces.²⁰ We want the processes used in the research, and what has been learned, to be applied to hospitals and other healthcare sites nationally. We will assess what needs to be done to prevent micro-plastics and medicines entering the environment from the NHS estate and then work to reduce pollution from that source.
93. Healthcare Ocean is an initiative which aims to conserve and protect coastal and marine ecosystems through minimising harm resulting from the procurement and delivery of healthcare whilst increasing awareness of the benefits to human health and wellbeing from healthy seas, coasts, and waterways. Resources to help Health Boards understand why oceans are so critical to the future of both planetary and human health and actions that can be taken are available.²¹

Land stewardship

94. The Scottish Government Land Rights and Responsibilities Statement (LRRS) states that the people and organisations that make decisions relating to land should recognise and act in line with their responsibilities, as well as their rights.²² As a significant landowner, NHS Scotland is committed to taking account of the following LRRS principles in decisions about our land:

- The overall framework of land rights, responsibilities and public policies should promote, fulfil and respect relevant human rights in relation to land, contribute to public interest and wellbeing, and balance public and private interests. The framework should support sustainable economic development, protect and enhance the environment, help achieve social justice and build a fairer society
- There should be a more diverse pattern of land ownership and tenure, with more opportunities for citizens to own, lease and have access to land
- More local communities should have the opportunity to own, lease or use buildings and land which can contribute to their community's wellbeing and future development
- The holders of land rights should exercise these rights in ways that take account of their responsibilities to meet high standards of land ownership, management and use. Acting as the stewards of Scotland's land resource for future generations they contribute to sustainable growth and a modern, successful country
- There should be improved transparency of information about the ownership, use and management of land, and this should be publicly available, clear and contain relevant detail
- There should be greater collaboration and community engagement in decisions about land

95. The Scottish Land Use Strategy²³ also promotes the responsible stewardship of Scotland's resources to deliver more benefits to Scotland's people as a key objective. Its ten principles of sustainable land use are complemented by the LRRS. This also links to our work on Community Wealth Building in the Sustainable Communities section.

96. The Land Rights and Responsibilities Protocol²⁴ promotes good stewardship and high standards of land management across Scotland. We will practice good stewardship in the decisions we make about our land by taking account of the long-term needs of local communities and public benefits in support of wider national outcomes. Healthcare Improvement Scotland will provide advice and support to Health Boards on engaging with communities over the use and disposal of land and assets.

97. We will work with other public, private and third sector partners to support the development of long-term derelict and vacant sites, to address health inequalities and offer nature based solutions to the climate and nature crisis, as well as meeting estate objectives.

Actions we will take

98. To manage the risk of environmental harm from our activities and promote good environmental stewardship, Health Boards will:

- ✓ implement and maintain the NHS Scotland EMS to ISO 14001 standards
- ✓ report on environmental risks, compliance and continuous improvement at Board level
- ✓ cascade and embed environmental management awareness across departments
- ✓ trial methods to eliminate medicinal residues and micro-plastics from hospital waste-water
- ✓ put the Land Rights and Responsibilities principles into practice regarding decisions about NHS owned land
- ✓ consider how local needs are impacted and engage with local communities in the context of disposing of or acquiring land and assets

99. To reduce the impact of our waste we will:

- ✓ ensure that all waste is reported in the Waste Data Tool and include that as a mandatory contract requirement.
- ✓ review segregation and the provision of recycling waste containers, maximising recycling service provision wherever possible
- ✓ implement annual communication and behaviour change campaigns to maximise reuse, recycling and encourage, where appropriate, a move away from single use items
- ✓ prioritise recycling and material recovery which provides high quality recylates, supporting re-use and up-cycling of materials, working in partnership with local and national resource management industry
- ✓ require our waste contractors to provide transparent reporting, detailing all movements of waste, providing traceability and allowing all parties to ensure that waste is only managed at suitably authorised facilities, ensuring it does not cause environmental harm.
- ✓ require our contractors to report the contamination levels of our waste so that we can understand and address any issues and support high quality recycling
- ✓ update our policies to reflect anticipated changes to national waste policy (extended producer responsibility, deposit return, plastics tax)

Valuing, protecting and managing our greenspace

‘Nature itself is the best physician.’ – Hippocrates

100. There is a wealth of good quality evidence demonstrating the positive impact that contact with nature can have on physical and mental health.²⁵ Access to high quality greenspace can provide health-enhancing opportunities for patients, staff, and communities and have a positive impact on biodiversity through, for example, planting native woodland, natural flood management, and managing grass and flower beds to support pollinators. It also contributes to carbon capture,

encouraging active travel, reducing car dependency and mitigating the negative effects of air pollution, excessive noise, heat and flooding.

101. NHS Scotland is a custodian of significant areas of greenspace and we are committed to working with our local communities and other partners to develop and manage this public asset in a way which improves public health, reduces health inequalities and helps to address biodiversity loss and the climate emergency.

Where we are now

Through its NHS Greenspace Demonstration Project, the Green Exercise Partnership of national public bodies for health and environment has worked with ten area Health Boards to show the range of benefits that flow from investment in, and management of, NHS greenspace.²⁶ The Project has delivered physical greenspace improvements across 87 hectares of NHS owned land and shown that it is possible to make a real difference in the provision, management and regular use of greenspace across a range of health and care settings.²⁷

A number of Health Boards have made good progress in building capacity and providing leadership in the management and regular use of greenspace. For example, NHS Forth Valley recently won the Building with Nature National Award for outside space at Forth Valley Royal Hospital and Larbert Woods.²⁸ NHS Lothian has pioneered a strategic approach to managing local greenspace through their Greenspace and Health Strategic Framework²⁹ and carried out a biodiversity audit and climate change assessment of their estate as part of a natural capital approach to valuing their green assets.³⁰

Despite these efforts, the NHS outdoor estate remains an often underused, uninspiring, under-appreciated and undervalued resource overall. Maintenance costs with no immediate benefit, competing demands for land use and budgetary constraints mean that NHS greenspace can be perceived as a liability instead of an asset.

102. We want to realise the full potential of the greenspace resource across the NHS Scotland estate. Our aim is that NHS greenspace is embedded as a core component of Scotland's health and social care services and managed to improve provision, access, quality and use. We will develop resources and guidance and provide clinical and non-clinical staff with the knowledge, skills and commitment to deliver on our ambition.
103. We will work with partners to develop and implement a natural capital accounting approach to valuing our greenspace for climate, environmental and health benefits. We will provide leadership and expertise in promoting the management and use of NHS greenspace and guiding its future development.
104. Key to progress will be gaining a better understanding of the extent, quality and accessibility of our greenspace. Pilot work has been carried out to digitally

map the greenspace of three Health Boards and this will be extended to the whole NHS estate.

105. All local Health Boards that have not done so already will, following the example of NHS Lothian³¹, develop and implement a strategic framework for greenspace which sets out local needs and priorities for the area, including the provision and resourcing of future green health activities. Working with the environment and other sectors, including community groups and third-sector, will ensure a whole system approach to NHS greenspace and bring together shared objectives.³²
106. Management plans should be prepared for all major sites to plan future change and maximise opportunities to enhance biodiversity, address climate change and increase the use of the grounds for staff, patients, visitors and the community.

Actions we will take

107. To ensure the development and management of NHS greenspace in a way which supports staff, patients and local communities, improves public health and reduces health inequalities, and helps to address biodiversity loss and climate change we will:
- ✓ digitally map the extent, quality and accessibility of NHS greenspace
 - ✓ develop and implement a strategic framework for greenspace at the local Health Board level
 - ✓ use natural capital approaches to assess and value the contribution of NHS greenspace to delivering climate, sustainability and health outcomes, including carbon sequestration
 - ✓ identify opportunities for restoring natural habitats, increasing biodiversity value and delivering nature based solutions
 - ✓ prepare site-based management plans for all major sites to improve the greenspace resource and its use
 - ✓ link path networks and green spaces within and, working with local authorities, to the health care estate to create green networks that encourage walking, wheeling and cycling for relaxation, exercise, meetings and active travel
 - ✓ improve public access to NHS greenspace, particularly where there is no or unequal local access
 - ✓ support local communities and community groups to restore, develop and manage NHS greenspace
 - ✓ provide clinical and non-clinical staff with the knowledge, skills and commitment they need to maximise the contribution of NHS greenspace in healthcare settings
 - ✓ develop and implement arts strategies to aid wayfinding and encourage use of outdoor spaces

Sustainable development of the NHS estate

'Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.'³³

108. Whether we are investing in new buildings and grounds or undertaking major refurbishments of existing facilities, sustainability needs to be at the heart of our approach. Recent good practice demonstrates that net-zero operational carbon and delivering in a truly sustainable way is possible. Our challenge is to extend this good practice to all future investments and to continue to make improvements.

Where we are now

In June 2019, NHS Chief Executives made a commitment that from April 2020 all new NHS facilities and major refurbishments would be designed to have net-zero greenhouse emissions or, where a net-zero design was not practical, would have a clear road map setting out how they would achieve net-zero emissions by 2045. The Balfour Hospital is the first fully electric hospital in Scotland and the new Parkhead Health and Social Care Centre will be the first new, fully electric community facility.

The National Design Assessment Process (NDAP) is a mandatory requirement for new healthcare facilities and aims to ensure compliance with project specific design standards and national standards for healthcare design and sustainability.¹⁹ Scottish Government also mandates the use of NHS Scotland Achieving Excellence in Design Evaluation Tool. An NHS Scotland Sustainable Construction and Design Guide (SHTN 02-01) has been produced and is currently being piloted.³⁴

109. Where there is a need for new healthcare facilities, we want both the buildings and grounds to be safe, nature-rich, sustainable, resilient and accessible. Following an initial pilot period, the use of the NHS Scotland Sustainable Construction and Design Guide (SHTN 02-01) will be mandatory for all new healthcare facilities and refurbishments so that design quality and sustainability principles are fully integrated at each stage of the process. All new facilities and major refurbishments will be built to produce net-zero operational emissions or have a clear plan to achieve net-zero by 2040, in line with the commitment in this strategy to be a net-zero health service by 2040 or earlier, and will be able to withstand the impacts of a changing climate.
110. In light of the Scottish Government's aim for publically owned buildings to use zero emissions heating by 2038, this strategy also commits NHS Scotland's new facilities and major refurbishments to either be designed to use renewable heating systems from the beginning of their use or to have a clear plan to do so by 2038 where a renewable heating system is not currently practicable. It is the Scottish Government's expectation that renewable heating systems will be used for all new buildings.
111. Achieving net-zero emissions will be affected by our ability to adapt to climate change risks, particularly as we transition to an electrified system. All new healthcare facilities and energy infrastructure must be designed to be able to

withstand the impacts of our changing climate. Flood risk, higher temperatures, winds and storms, water scarcity and intense rainfall are all likely to present challenges in the future and building in resilience to these impacts now will avoid the need for costly retrofitting in the future as well as ensuring the safety of patients, staff and visitors.

112. Rather than an add-on, positive planning and investment in greenspace can deliver multiple benefits. The relationship between building design, greenspace and other green infrastructure such as green roofs and rain gardens, and wellbeing is well documented. They contribute to a strong sense of place and support water management, heat reduction, renewable energy production, accessible and inviting circulation and links with the wider community. They provide opportunities for health promoting and therapeutic activities. The quantity and quality of greenspace at each location should be maximised to provide opportunities for patients, staff and visitors to exercise and relax as well as for increasing biodiversity, improving local air quality and providing shade.
113. Research carried out in NHS Highland has demonstrated that hospitals sites are sources of pharmaceutical and micro plastic pollution entering waste water systems. We will continue to investigate options for reducing and eliminating waste water pollution from the NHS estate and we will design new facilities to minimise environmental pollution.
114. To ensure the sustainable development of new builds and major refurbishments Health Boards will:
 - ✓ use the NHS Scotland Sustainable Design and Construction Guide in all NHS Scotland new buildings and major refurbishments
 - ✓ assess the full carbon consequences of new builds
 - ✓ design all new facilities and major refurbishments to produce net-zero emissions and use renewable heat
 - ✓ ensure that all new facilities are sited and constructed to minimise overheating and to be resilient to flooding, winds, storms and intense rainfall
 - ✓ design new facilities for the future taking account of flood risk, increased temperatures and the occurrence of heatwaves
 - ✓ incorporate flood resilient materials and green infrastructure including green roofs, rain gardens and sustainable drainage systems into all new facilities
 - ✓ Reduce waste water pollution from NHS sites and design new facilities to minimise environmental pollution
 - ✓ maximise the quantity and quality of greenspace at the location of all new healthcare facilities and design to promote equality and healthy choices
 - ✓ integrate path networks and greenspaces within and to the healthcare estate to create green networks that encourage walking and cycling for relaxation, exercise, meetings and active travel

- ✓ account for and compensate any impacts from the development of new healthcare facilities and refurbishments on biodiversity with equivalent and additional gains
- ✓ use a master planning approach and quality standards such as Building with Nature to integrate well designed greenspace and green infrastructure into all new and retrofitted healthcare facilities

Sustainable Travel

'There is scientific consensus that exposure to air pollution is harmful to people's health in terms of premature mortality and morbidity, mainly related to respiratory and cardiovascular disease.'³⁵

'If physical activity were a drug, we would refer to it as a miracle cure, due to the great many illnesses it can prevent and help treat.'³⁶

115. Emissions from domestic transport made up 25% of Scotland's total greenhouse gas emissions in 2019. To change this, the Scottish Government aims to transform Scotland's transport system from one based on fossil fuels to one based on renewable energy and active travel. Seventeen per cent of journeys in Scotland in 2019 were under 1 km, and more than half (54%) were under 5 km – these shorter trips offer a real opportunity for a significant shift to active travel.
116. Road transport accounts for over 20% of greenhouse gas emissions in the UK and causes poor air quality and noise pollution. Furthermore, there were 165 reported deaths and 7,638 reported injuries on roads in Scotland in 2019.³⁷ This has extensive consequences for those directly impacted, their families, friends, and society, and further increases pressure on the NHS.
117. NHS Scotland will support efforts to make Scotland's transport system healthier and more sustainable. As a major employer and anchor institution that is visible to both patients and public, we are committed to providing viable sustainable travel options. By making it easier to walk, wheel, cycle and take public transport to NHS services, we will improve access for all (particularly those with low incomes), improve physical and mental health and encourage safer and more pleasant communities. By reducing the need to travel and supporting the shift to active travel, public transport, shared transport and vehicles powered by renewables, we will help improve air quality and cut transport related emissions.
118. In this part of the strategy, we set out our plans to support the wider transformation of travel and transport across the country and to remove fossil fuelled vehicles from the NHS fleet. We will do this in a way which supports the Scottish Government's National Transport Strategy 2³⁸ and its aims of reducing inequalities by providing fair access to the services we need and improving health and wellbeing.
119. Reducing the number or length of journeys, especially by car, can benefit the health of our patients, our staff and the environment. The Scottish Government aims to reduce the number of kilometres travelled by car in Scotland by 20% by 2030 compared to 2019.³⁹
120. Reducing car use will reduce the demand for fossil fuels, and help to manage the demand of electric vehicles on the energy system. Evidence strongly suggests that reducing car use, reallocating road space, and supporting other modes of transport will benefit health and health inequalities across Scotland – not just by

reducing greenhouse gas emissions but also by improving air quality, physical activity, noise levels, community connectedness, flood resilience, and the availability and accessibility of public spaces for other uses.^{40 41} For instance, air pollution is a key contributor to avoidable hospital admissions, causing unnecessary suffering and financial cost.

121. At present, the greatest burden of health harms from car use are felt by low-income communities, people with chronic health conditions, young people, and older people – all of whom are less likely to have access to a car themselves. Many areas in Scotland also experience transport poverty, especially in more rural Boards.

122. Throughout all our work, we will prioritise active travel and low emissions transport options including public transport, car sharing and ultra-low carbon vehicles before single occupancy standard vehicles. In doing so, we will ensure that those who rely on cars as mobility aids due to disability continue to be prioritised for access to car parking at NHS sites. The actions set out in this section will therefore help NHS Scotland realise its goal of improving health and reducing health inequalities across the population.

Where we are now

Before the pandemic, the vast majority of NHS services were delivered in person with some patients having to travel large distances for routine appointments, particularly in remote and rural areas. Working from home was the exception. The pandemic resulted in a rapid growth in online and telephone consultations and in home working.

Health Boards are already taking forward work to support active travel and public transport but there is more that can be done. Data gathered by individual NHS Boards suggests that current rates of travel to main hospital sites by staff, patients and visitors are approximately:

- Active travel: 2.8% of journeys
- Public Transport: 7.4% of journeys
- Car use: 89.2% of journeys

However, surveys of this nature are not widespread and are carried out infrequently.

123. To provide the data and set the policies we need to enable the shift to more sustainable transport and to measure our progress, we will:

- ✓ monitor shifts in how people travel to and from NHS sites
- ✓ review our travel policies to ensure they enable sustainable travel and apply a travel hierarchy, promoting active travel, public transport, car sharing and low carbon vehicles before single occupancy fossil-fuelled vehicles
- ✓ establish targets to reduce the number of journeys taken by car (staff, patient and visitors)

Reducing the need to travel

124. The first step towards more sustainable transport is to reduce the need to travel. We will support the continued use and expansion of NHS Near Me and other forms of remote consultation where it is clinically appropriate. This is backed by £3.4 million of annual funding from the Scottish Government. We will also support the use of other forms of digital care at home such as remote blood pressure monitoring or digital mental health services. The use of digital is of particular benefit to people who live further away from where health services are delivered in person. We know that not everybody has good online access or feels confident in using this technology and we will ensure that non-digital ways of accessing services remain an option.
125. Thousands of NHS staff have been working from home throughout the pandemic and we will support them to continue to do so. The current Homeworking Policy that sets the standard for NHS Scotland is being refreshed and modernised to reflect the changed working environment. In advance of this review, the Scottish model flexible working policy has been changed to state that a staff member has the right to request flexible working (which includes home working) from day one in post.⁴² While working from home reduces the need to travel, it can also result in energy being used which would not have been otherwise – e.g. heating homes. The environmental impact also largely depends on the type of travel which would have been used with reductions in car use having the greatest benefits.
126. The lowest emission working behaviour is a short commute by public and active travel to an energy efficient building. Policy should support those with long distance commutes who wish to continue working from home full time. We will work with partners such as Home Energy Scotland to promote the uptake of energy saving measures by staff and patients in the home.
127. NHS Scotland seeks to find the right travel solutions for each of the communities we serve, maximising health and wellbeing through both the care we give and the way it is provided. The NHS will support the Scottish Government's ambition to create twenty-minute neighbourhoods – places where things that people need for everyday life are all located within a twenty-minute walking distance. We aim to bring care closer to home to make it more accessible to people and we will work with communities and other partners to make twenty-minute neighbourhoods a reality across the country.

Actions we will take

128. To help reduce the need to travel and the number and length of journeys taken by car we will:
- ✓ plan services in the community using the principles of twenty-minute neighbourhoods

- ✓ support the continued use and expansion of NHS Near Me and other forms of digital care where clinically appropriate as part of a patient-centred approach
- ✓ explore options for the better integration of care to reduce the number of separate appointments and journeys
- ✓ refresh and modernise our Homeworking Policy

Enabling active travel

129. Walking, wheeling and cycling are the healthiest ways to travel - with the lowest environmental impact. NHS Scotland will enable staff, patients and visitors to use them where they can. For short journeys, active travel is the most convenient and affordable mode of transport.

130. We know that increased physical activity and time spent outdoors can improve physical health and mental wellbeing.⁴³ And active travel can bring other health benefits. Creating the space and infrastructure for people to walk, wheel and cycle can bring opportunities for creating green and blue spaces on the NHS estate which have proven mental health benefits and supports the improvement of local biodiversity. We are working to make these spaces and travel options accessible to everyone.

131. eBikes and eCargo bikes have the potential to replace car use in many circumstances. We will incorporate these into the NHS fleet where we can and support staff to use them where they can instead of driving to or for work.

Where we are now

Some Health Boards have already been working towards enabling active travel to and from its sites.

For example, many Boards now offer staff a Cycle to Work scheme which allows employees to purchase bicycles and associated equipment through salary sacrifice options. Other examples of good practice are offering staff free Essential Cycle Skills training, free bike checks and active travel advice, provision of pool bicycles, cargo bikes and adaptive cycles for NHS-related travel, providing cycle and driver road-sharing awareness training and making improvements in bike storage and shower/changing facilities.

Several Health Boards have benefitted from Cycling Scotland's Cycling Friendly Employer Development Fund and have received the Cycle Friendly Employer Award for some of their sites.

Six Health Boards are working in partnership with Sustrans through the Workplace Engagement Programme and National Partnerships Strategy, focusing on enabling staff to choose active and sustainable modes of travel and on bringing about organisational change to support that shift.

Actions we will take

132. To support an increase in active travel to NHS sites we will:
- ✓ work with local authorities, third sector organisations, regional transport partnerships, local communities (including Local Access panels), and other partners to link our NHS facilities to safe, direct, inclusive, and convenient active travel routes and networks in the wider community
 - ✓ make our outdoor spaces and sites easier, safer and more enjoyable for everyone to walk, wheel and cycle on including through safe routes and improved wayfinding
 - ✓ ensure our Cycle to Work schemes allow all staff to buy cycles (including eBikes) over an affordable period of time
 - ✓ work towards every Health Board achieving the 'Cycling Friendly Employer Award' from Cycling Scotland for their major sites by no later than 2026
 - ✓ assess NHS sites for access to safe and inclusive cycle parking, shower and changing facilities, and drying and storage rooms for outdoor clothes
 - ✓ ensure that existing and new NHS facilities (including pop-up clinics, vaccination centres and screening sites) prioritise access for people travelling actively and sustainably, including safe and inclusive storage facilities for cycles and other mobility aids
 - ✓ commission research on the options for establishing mobility hubs at NHS sites
 - ✓ provide detailed and accessible information (in a variety of formats) to all our patients and visitors on how to avoid using a car when accessing our sites including details of cycle routes and paths, cycle parking, facilities and connectivity of public transport options for people walking, wheeling and cycling

Promoting public, community and shared transport

133. We want all our sites, including those non-NHS sites used by primary care services, to be easily accessible for staff, patients and visitors by public or community transport. Public transport is a more physically active way of travelling than private car and has a much lower environmental impact as it is more resource efficient. Where public transport is not a realistic option, we want community-led transport and lift-sharing to be available to help people access healthcare services.
134. Improving public and community transport links will also help with our ambitions to reduce health inequalities, as it reduces reliance on cars and car ownership which are difficult for people on lower incomes to access. We will work closely with local authorities to identify where public transport links to NHS sites need to be improved and accessibility by public transport will be a fundamental consideration in decisions about where to develop new NHS facilities.
135. NHS Scotland will develop links with the Community Transport Association UK and the volunteer community transport groups to make it easier for patients to

access their healthcare in the most effective and streamlined way. We are aware that some people find it difficult to use public transport for good reason and will ensure that appropriate and dignified disabled access to public and community transport options is a key part of these discussions.

136. Shared transport such as bike sharing schemes, car clubs and ride sharing have a role to play in creating a more sustainable transport system. We will consider these options as part of our efforts to make travel to and from NHS sites more sustainable.

Actions we will take

137. To increase the number of journeys made by public, community and shared transport, we will:
- ✓ work closely with local authorities and communities to identify where public transport links to NHS sites need to be improved
 - ✓ work with local authorities and transport providers to improve public transport links to NHS sites
 - ✓ make accessibility by public transport a fundamental consideration in decisions about where to develop new NHS facilities
 - ✓ work with Community Transport Association UK and volunteer community transport groups to improve patient access
 - ✓ consider shared transport as part of our approach to travel and transport
 - ✓ promote the use of journey planning tools to help patients access appointments by public, community, and shared transport

Decarbonising our fleet and business travel

138. We are committed to ensuring that our whole fleet, both owned and leased, has zero tail pipe emissions as early as possible. We want to encourage sustainable travel by NHS staff for work purposes and reduce the need to travel by private vehicle.
139. We want to use the power of our own actions and our purchasing power as a large organisation to help bring about the shift in vehicle technology that is necessary to protect us all from climate change.

Where we are now

NHS Scotland owns and operates around 9,300 vehicles, ranging from leased cars to ambulances to heavy goods vehicles. NHS-owned fleet related emissions are monitored and reported as part of each NHS Board's annual Public Bodies' Climate Change Duties Report. The equivalent of around 55,000 tonnes of carbon dioxide was emitted by the NHS fleet in 2020/21, including the emissions from the National Distribution Service as well as Health Boards' own fleets.

In addition, some staff have to travel as part of their work, either using their own cars or cars leased by their Health Board for their use. Business mileage claims data is collected by NHS Boards primarily for reimbursement. However, this is not standardised and often does not allow accurate calculation of associated greenhouse gas emissions.

140. We will reduce the need for staff to use their own fossil-fuelled vehicles for work. This will include increasing the use of eBikes and improving access to NHS electric pooled vehicles.
141. We will look at options to use e-cargo bikes for transferring goods between NHS sites, building on work already carried out at Guy's and St Thomas's Hospital in London.⁴⁴ We will also explore ways of minimising travel in the delivery of our services through actions like freight consolidation and the use of GIS for better route planning.
142. We aim to remove all fossil-fuelled small and light commercial vehicles in the NHS fleet. All small and light commercial vehicles will be powered by renewable alternatives. To support the transformation of our fleet, we will continue to install electric vehicle charging points throughout the NHS estate and collaborate across the public sector on charging infrastructure. An NHS Scotland Electric Vehicle Charging Infrastructure Guide has already been produced.⁴⁵ We will provide training to staff to help them start using electric vehicles. We will also take steps to support the development of other types of renewable power for vehicles such as hydrogen and, by 2030, we will no longer buy or lease large fossil-fuelled vehicles.
143. We will work to reduce the emissions from business travel. To monitor our progress, Health Boards will include the greenhouse gas emissions arising from business travel (including grey fleet – where staff use their own vehicles for work) as part of their annual Climate Change reports. We will review our policies for staff leased vehicles and business travel so that they support and enable sustainable travel and decarbonisation. This will include reviewing mileage reimbursement rates and allowances.

Actions we will take

144. To accelerate the decarbonisation of our fleet and business travel we will:
- ✓ increase the use of eBikes for NHS purposes
 - ✓ improve access to NHS electric pooled vehicles for business use
 - ✓ explore our options for using eCargo bikes to transfer goods between NHS sites
 - ✓ explore and pilot ways of minimising travel in the delivery of our services, e.g. through freight consolidation and the use of GIS for better route planning
 - ✓ ensure all NHS small and light commercial vehicles are powered by renewable alternatives by 2025
 - ✓ no longer buy or lease large fossil-fuelled vehicles by 2030

- ✓ include greenhouse gas emissions arising from business travel (including grey fleet) as part of our annual Climate Change reports
- ✓ review our policies for staff leased vehicles and business travel so that they support and enable sustainable travel and decarbonisation
- ✓ no longer support travel by domestic flight where suitable train or bus alternatives, video or teleconferencing are available and practical
- ✓ we will require vulnerable road user training for all staff and contractors using private and fleet vehicles for work – including Practical Cycle Awareness Training for Passenger Carrying Vehicle (PCV)/Large Goods Vehicle (LGV) licence holders.

Climate change and access

145. Storms, heavy rain, landslides and heatwaves can all affect infrastructure (transport routes, power, ICT and water supply) with failures resulting in disruption affecting access to health facilities for patients, staff and suppliers. Such disruption also causes difficulties for medical staff, including paramedics, to reach people in their own homes and elsewhere.

Where we are now

Flooding is a key risk to infrastructure in Scotland, with recent events including storms Arwen, Ciara and Dennis, which disrupted road, rail, airline and power services, and the 2020 breach of the Union Canal that resulted in significant damage to the Edinburgh-Glasgow rail line. Extreme weather events such as storms, lightning and high winds have had significant impacts on infrastructure causing disruption and delay.

Research⁴⁶ shows that the emergency services are particularly vulnerable to surface water flooding and even low magnitude flooding can reduce compliance with mandatory response times.

19% of Scotland's coastline is at risk of erosion within the next 30 years with between half and a third of all coastal buildings, roads, rail and water networks located in these erodible sections.

146. Many of the issues associated with transport and infrastructure disruption are outside the control of NHS Scotland but can have a considerable impact on the delivery of care. It is therefore important that Health Boards work closely with infrastructure owners and managers, Integrated Joint Boards, local authorities and SEPA to understand the risks, especially for critical routes in remote rural areas where there are no alternative routes.

147. The Scottish Ambulance Service will consider current and future climate impacts in planning the delivery of its services.

Actions we will take

148. To address the risks to transport infrastructure we will:

- ✓ work with transport infrastructure partners to consider access issues for patients, staff and suppliers in their CCRAAs
- ✓ the Scottish Ambulance Service will identify areas and routes at risk and use the information to plan the distribution of response stations and develop contingency plans

Sustainable Goods & Services

'It is estimated that 80% of Scotland's global climate emissions are linked to the production, consumption and waste of products and resources.'⁴⁷

149. Earth Overshoot Day⁴⁸ marks the date when our demand for resources exceeds what Earth can regenerate in that year. In 2020, the Global Earth Overshoot Day was 22nd August. In 2021, it was 29th July. The current global trend shows a concerning picture of over consumption. For the UK, the picture is more worrying. In 2022, the UK's Earth Overshoot Day was 19th May. The current level of consumption of materials is not sustainable, it is the root cause of the triple planetary crises of climate change, biodiversity loss and pollution. Scarcity of natural resource and risks to the resilience of supply chain of products we rely on is a reality. Price volatility and access to essential products are concerns in current and future contracts.
150. We need to reduce our demand for resources and avoid generating waste. We need to value the resources that we do consume by changing the way we procure, changing the way industry supplies and designing products to last. Systems where re-use and refurbishment are core to the provision of products need to become the norm with a focus on avoiding waste. Where waste is unavoidable, material management focusing on high value recycling and recovery designed for material re-use must be designed into contracts.
151. To become an environmentally and socially sustainable health service, we need to embrace the circular economy, using our purchasing power to encourage our suppliers to change the way we access products and services, supporting them to reduce their greenhouse gas emissions to net-zero and to limit the negative environmental and social impacts of our supply chain. Working in collaboration with other UK health services, we want to maximise our contribution to reducing supply chain emissions to net-zero by 2045.
152. The harm caused by the over-use of resources is very real but it is often hidden from sight and there is a role for everyone in the NHS in helping to reduce these impacts. The social impacts from our use of resources include risks to workers' health and safety, child and forced labour and health and environmental harm from the use of hazardous materials. A whole range of actions are needed to help us create a truly sustainable and net-zero health service.
153. This section of our strategy focuses on our actions to:
- create circularity in our supply chains and avoid waste by changing the way we procure goods and services and in turn changing the way in which the market delivers them
 - to maximise high quality recycling and material recovery, supporting the wider economy and creating high quality recycle.
 - reduce the environmental and social impacts from our supply chains

- increase the resilience of our supply chain to climate change
- improve how we deal with the equipment, material and goods we have already procured and are on NHS sites at the end of their useful life

154. Many of the goods and services we purchase are also bought by other Scottish bodies or other NHS organisations across the UK. We will work collaboratively with other Scottish public sector organisations to influence common sectors and we will seek to work with all UK health focused groups to engage effectively with the global multinational supply base to increase our supply chain resilience and support rapid greenhouse gas emissions reductions.

Circular Economy

155. In our existing economy, we “take, make and dispose”. We take resources from the ground, air and water; we make them into products and structures; we use them and then we dispose of them. This is often referred to as the ‘linear economy’. The linear economy is not sustainable and is a root cause of our current over consumption. To ensure ongoing access to high quality goods and to continue to support innovation and research, we need to move to procuring and receiving goods based on circular economy models. Within these we reduce the demand for virgin material; encourage reuse, repairs and remanufacture and design in material separation and recovery supporting material recycling to maximise the value of any waste that is generated.

156. The climate and nature emergencies are closely linked to the quantity of products that we use and consume, how they are made and how they are disposed of. Over 80% of Scotland’s carbon footprint comes from the goods we use and consume and 90% of global biodiversity loss and water stress impacts is caused by the extraction of resources and processing.⁴⁹ A circular economy extracts less from the planet, re-uses what we’ve already taken and reduces our waste.

157. Creating a circular economy is a vital part of the Scottish Government’s plan for securing a green recovery from the COVID-19 pandemic and achieving net-zero. Further, the change from a linear economy to an increase in use of circular economy models is expected to significantly support the attainment of the UN SDGs. NHS Scotland, in light of its purchasing power, has a key role to play in enabling Scotland to move away from a throwaway, linear economy to a circular economy.

Where we are now

There are already significant efforts to reduce waste supported by key NHS infrastructure in sterile services departments and laundries. Each year sterile services departments are responsible for reprocessing 13 million medical instruments. Other areas such as wheelchair services and audiology devices have a repair aspect provided by key centres within Health Boards to support the continued re-use of products. All medical physics departments have an equipment end of use policy that involves recycling with the supplier, donation to a charitable cause or re-sell through a third party auctioneer.

NHS Scotland purchases £2.5 billion worth of goods and services each year from around 8000 suppliers and much of the NHS's carbon footprint is created by the manufacture and supply of medicines, chemicals, equipment and other materials.

158. In making decisions about the goods we procure, we will choose products which have been designed for durability, can be repaired and upgraded, and can be recycled at the end of their useful life. We already use a reuse and redistribution platform to share redundant items like office furniture with colleagues and partners. We will work with our supply chain and other partners to develop the infrastructure needed for effective take-back systems supporting lease and access contracts over ownership and facilitating extended producer responsibility.
159. Procurement has a pivotal role to play and procurement professionals and clinical staff working together can review and help shape contracts in the future, reducing the requirement for single use items and putting in place support systems required to support reprocessing, take-back and high quality recycling.
160. The Covid-19 pandemic has resulted in an increased use of PPE within both the NHS and wider society. This is necessary to stop the spread of infection, but it has a negative environmental impact due to increased consumption and waste. We have established a programme of work to reduce the amount of PPE we use, increase the use of reusable PPE within NHS Scotland and increase those items that are recycled at the end of their use (both single use and multi-use items).
161. In taking forward this work, we will look at how the materials used for PPE, which are also commonly used in other healthcare products, can be more effectively recycled so that the benefits of this work can be applied to other products. We will work with suppliers and Infection Prevention and Control to trial innovative cleaning and decontamination processes which will allow us to reuse PPE safely.
162. The Scottish Government has established a NHS Scotland Circular Economy Programme to support the transition to more circular supply systems. Circular systems will play a pivotal role in enabling NHS Scotland to reach net zero. We need to review and change how we procure goods and services, ensure ancillary

and support systems are in place to enable greater re-use and reprocessing and work with the supply chain to help suppliers evolve and change their business models. Our aim is to provide a transition route map which focuses initially on material management and reducing waste, whilst supporting the establishment of systems and supply models to fully integrate circular economy models as part of the mainstream as soon as possible.

Actions we will take

163. To support Scotland's transition to a circular economy and build a circular society we will:

- ✓ review and change how we procure goods and services to support the transition to more circular supply systems
- ✓ develop supplier information for procurement setting out clear circular economy expectations of those supplying NHS Scotland and outlining support available
- ✓ classify suppliers in line with a development hierarchy, based on their approach and published data in relation to climate change and circular supply systems
- ✓ identify further items which are single use and/or not recyclable and collaborate with our suppliers to seek opportunities to switch to reusable and recyclable alternatives
- ✓ identify opportunities and barriers to circular supply systems and work to increase and reduce these respectively to support Health Boards and suppliers and increase the speed of transition to a circular economy
- ✓ work with stakeholders to create material management plans which can be used to support procurement decisions and reduce the impact of products, increase high quality material recycling and encourage recycled content in the products we buy
- ✓ support and trial take-back and circular supply systems bringing stakeholders together on a local and national basis
- ✓ Consider business models other than ownership that may facilitate circular economy e.g. renting/ leasing products
- ✓ Work with industry and suppliers to identify opportunities, remove barriers and quantify positive impacts
- ✓ take forward a national programme of work on sustainable PPE

Reducing the impact of our supply chains

164. Through using our purchasing power effectively, we can reduce the negative environmental and social impacts of our supply chain and increase the positive impacts. This work goes beyond the circular economy - NHS Scotland is under a legal sustainable procurement duty⁵⁰ to consider how, through the procurement of goods and services, it can:

- improve economic, social, and environmental wellbeing

- facilitate the involvement of small and medium enterprises and third sector bodies
- promote innovation

165. Our approach will be integrated throughout all of NHS Scotland's procurement processes. We will work as a single system to achieve our aims. The assessment and scoring of procurement processes will include environmental and social considerations and take into account life cycle mapping to identify key areas of concern to be addressed and whole life costs. We have established an NHS Scotland Sustainable Procurement Steering Group to help achieve our policy outcomes and all Health Boards will work through that group to identify opportunities and work with the supply chain to design solutions.

166. The Scottish Government has prepared tools and guidance to assist public bodies in fulfilling the sustainable procurement duty and NHS Scotland will use the latest version of these tools and apply the relevant guidance in all our purchasing decisions. We are committed to reviewing our supply chain to determine the extent of associated greenhouse gas emissions and social and environmental impacts. We will take action to reduce the supply chains' negative impacts and promote positive effects.

167. To maximise our impact, we will prioritise addressing the issues with the products with the highest environmental costs and those with the greatest risks of socially unsustainable practices. We will actively work with suppliers to improve their environmental and social sustainability. Building on the approach set out in the Scottish Government's sustainable procurement tools⁵¹, we will incorporate environmental and social sustainability, greenhouse gas reductions and increasing the circularity of both products and materials into our purchasing decisions. In making these decisions, we will take into account the environmental impact of the goods to be purchased throughout their entire lifecycle, from the resources used to manufacture them all the way through to their final disposal.

168. To support this approach, we will investigate and implement methods to quantify the health and environmental impacts of our purchasing decisions. Often the full health and environmental impacts of our use of goods and services is not taken into account in procurement decisions. Our use of goods has real costs to the NHS in terms of waste disposal and the negative impacts on people's health resulting from environmental harm. By assessing these costs, we can better identify which suppliers and which goods provide the really best value to the NHS and the health of the people of Scotland.

169. We will require high ethical environmental, social and labour standards from all our contractors and request our suppliers provide us with equality and diversity policies. We will require suppliers to conform to the Modern Slavery Act.

170. Through targeted action defined through the sustainable procurement tools, we will routinely monitor the environmental impact (CO₂ emissions and air

pollution) associated with our suppliers' transport and logistics, and work with them to reduce it. Through effective supplier management and engagement, we will work with our supply chains to define and implement solutions to minimise environmental impacts.

Actions we will take

171. To encourage our suppliers to cut their greenhouse gas emissions to net-zero and limit our environmental and social impact we will:
- ✓ identify and include environmental and social considerations using life cycle mapping and take into account whole life costs in assessing tenders
 - ✓ use the Scottish Government's sustainable procurement tools and apply its relevant guidance in all our purchasing decisions
 - ✓ actively work with suppliers to improve their environmental and social sustainability
 - ✓ incorporate environmental and social sustainability, greenhouse gas reductions and circular economy approaches avoiding waste and building in end of life material management into our purchasing decisions
 - ✓ Develop methods to quantify the health and environmental impacts of our purchasing decisions
 - ✓ require high ethical and labour standards from all our contractors and request our suppliers provide us with equality and diversity policies and that suppliers to conform to the Modern Slavery Act
 - ✓ routinely monitor the environmental impact (CO₂ emissions and air pollution) associated with our suppliers' transport and logistics, and work with them to reduce it
 - ✓ work with our supply chains to define and implement solutions to minimise environmental impacts

Plastics, packaging and hazardous substances

172. Plastic are useful substances in modern healthcare. However, the production, distribution, use and disposal of plastic poses risk to human and environmental health. Plastics rely on the use on non-renewable resources and the pollution caused during their life cycle has a measurable impact on natural ecosystems and human health including the release and bioaccumulation of micro plastics, and release of hazardous substances, including endocrine disruptors.⁵²
173. Packaging and the use of plastic, particular composite materials which include plastic poses a problem in many sectors. Products used in the delivery of healthcare are no different and if anything rely on additional packaging measures to ensure sterility and promote ease of use. Ensuring that packaging is either re-usable or designed for recovery is a key step in managing and avoiding this waste stream.
174. A range of chemicals are used in the delivery of healthcare. Where possible these should be avoided, minimised and substituted for less harmful alternatives.

In addition to causing pollution to land and water, many of these products may pose an exposure risk to staff.

175. To make better use of plastics and reduce waste and harm, we will:
- ✓ seek to retain the value in plastics by ensuring they remain active in the economy via high quality recycling and encouraging recycled content
 - ✓ work with stakeholders to develop a plastics hierarchy, giving preference to polymers which can be recycled to a high standard using local infrastructure
 - ✓ reduce and phase out plastics which cause the most significant damage to the environment and human health
 - ✓ work with our existing suppliers to reduce unnecessary plastic
 - ✓ where single-use items are unavoidable, take steps to ensure that they contain a high minimum recycled content and are themselves fully recyclable
 - ✓ work with our suppliers to reduce packaging where it is possible to do so and prioritise reusable and fully recyclable bulk transport packaging
 - ✓ review the sustainability of hazardous substances and chemicals as part of our procurement processes, actively seeking to eliminate suspected hazards and switch to safer alternatives

Food

176. We will continue to engage with local farmers and food producers to identify how we can maximise the impact food procurement can have for local suppliers and the Scottish economy. We will work with our suppliers to minimise the use of environmentally damaging crop, animal, and fish yield enhancers. We will maximise plant based options, whilst ensuring that nutritional needs are met in line with the Food in Hospitals strategy.
177. In 2019, we produced the NHS Scotland Food Waste Reduction Strategy which outlines our plan to reduce food waste by a third by 2025 (compared to 2013). We are now developing Food Waste Action Plans which will describe the steps that Health Boards will take to deliver the strategy. Implementation of the Action Plans will result in financial savings associated with the reduced spend on food and the avoided costs of disposing of food waste and environmental benefits associated with reducing the demand for food produce.

Supply chain resilience

178. As climate change makes extreme weather more frequent and severe, it increases the probability of events that disrupt supply chains in Scotland and globally. Examples include the availability of raw materials or component parts, material scarcity and associated price volatility, supply of energy to production processes, travel and transport issues for staff and goods and disruption to communication systems.

179. Our aim is to ensure that we maintain security of supply and that this is resilient to extreme weather now and in the future. Health Boards should consider their supply chains within their CCRA's and Adaptation Plans and ensure that appropriate measures are included to maintain security of supply. Understanding historical supply chain interruptions will help inform these as well as considering where supply chains could be affected in future, in particular by flood events, storms, higher temperatures and drought.

Actions we will take:

180. To maintain security of supply that is resilient to extreme weather now and in the future, we will:
- ✓ engage with suppliers to identify and mitigate for high-risk product groups
 - ✓ develop contingency and communication plans with suppliers to make sure communication is strong during extreme weather events
 - ✓ maintain a back-up supply of essential products at the National Distribution Centre and locally within Health Boards
 - ✓ work with partners and engage with the global multinational supply base to increase our supply chain resilience and limit greenhouse gas emissions

Minimising our waste

181. As part of our efforts to make our use of goods more sustainable, we need to minimise the amount of waste we produce as well as manage it properly (as set out in the section on Sustainable Land and Buildings). Central to minimising waste is minimising the use of products in the first place.
182. Waste Management Officers will be key to the development of take-back systems, supporting reprocessing and the recovery of products and materials. Their role will require them to work with procurement teams and clinicians and ensure that take-back and recycling systems reflect the needs of the NHS and the products in use.
183. Waste Management Officers, as part of regular audits, will review product and material use. They will work with clinicians to identify opportunities to reduce the unnecessary generation of clinical waste (waste which may pose a risk of infection) via clinical practice. Opportunities to reduce clinical waste via segregation and separate management of packaging materials and un-used or non-infectious items are key elements of the audit process.
184. We will identify key waste and material streams and develop plans for both. Our plans will identify current waste arisings, opportunities to reduce waste arisings through circular procurement, avoiding unnecessary use, and increasing re-use. Where waste is produced and cannot be avoided, details of segregation and end of life management focusing on material recycling and recovery will be provided. In addition, our plans will detail how we will meet our waste reduction and recycling targets and focus on the production of high quality recycled materials.

185. As a minimum, Health Boards will develop plans for the following waste streams and key materials:

- clinical waste streams;
- medicines waste
- residual waste;
- recycling streams, both source-segregated and dry mixed recyclates;
- packaging waste;
- food waste;
- estates wastes including furniture and equipment;
- construction waste;
- plastics;
- metal;
- wood;
- textiles; and
- organics.

Actions we will take

186. To make our use of goods more sustainable and minimise waste we will:

- ✓ identify current waste arisings and opportunities to reduce waste for key waste and materials through circular procurement and increasing re-use
- ✓ work with stakeholders and suppliers to ensure accurate waste data is provided and that contracts are audited to ensure that waste is managed in line with contract specification
- ✓ generate management plans for materials/waste at Health Board level, mapping product use (and composition) to waste systems and waste contracts, identifying opportunities to meet and/or exceed re-use, recycling and recovery targets
- ✓ review internal systems for segregation, storage and management of products at the end of their life to support supplier take-back and refurbishment
- ✓ review internal systems for unavoidable waste, supporting segregation and management from point of production to collection for high quality recycling and recovery.

Sustainable Care

“Healthcare should be considered not only in terms of what can be delivered to an individual today, but also to the population in general, and the patients of the future.” - The Royal College of Physicians⁵³

‘The “Our Natural Health Service Programme” (ONHS)... is a programme of work that I am particularly proud to be involved with and connects two important and accessible contributors to our health – physical activity and outdoor green space’ – Sir Gregor Smith, Chief Medical Officer for Scotland⁵⁴

187. The way we provide care can have a major impact on our communities and the environment. It is key in our transition to a net-zero health service. The most environmentally and socially sustainable model of care is one in which fewer people need any care at all. Re-orientating the health service to move away from one which is a national illness management service to one which is a national health providing service is one of our central ambitions. By changing how we plan and deliver services we can empower people to have more control over their health and deliver rapid and long-lasting change which is environmentally sustainable, increases our contribution to good health and reduces health inequalities.
188. The National Care and Wellbeing Portfolio is the focus of our efforts to promote health, prevent ill-health and improve early intervention, proactive care and good disease management. Climate change is one of the three cross-cutting priorities for the four Care and Wellbeing programmes – Place and Wellbeing, Preventative and Proactive Care, Integrated Planned Care and Integrated Urgent and Unscheduled Care.
189. Our clinicians and staff must be at the heart of NHS Scotland’s climate emergency response and our efforts to become an environmentally and socially sustainable health service. This part of our strategy sets out NHS Scotland’s immediate priorities for delivering more sustainable care. It covers the following topics:
 - Sustainable care pathways and green health activities
 - Realistic Medicine
 - Medicines
 - Inhalers
 - Medical gases
 - Green theatres
 - Supporting primary care

Where we are now

Outstanding work has already been carried out across NHS Scotland, including reductions in the use of desflurane and work to make surgery more environmentally friendly, but it is time now to build on these initiatives and scale up our efforts. The need to act sustainably is increasingly recognised by clinicians with the Academy of Medical Royal Colleges and Faculties in Scotland issuing a statement that:

“We recognise that climate change is a global public health issue; that decarbonisation is vital to protecting public health and mental health; and believes there is a role for healthcare professionals in leading climate change mitigation in the Scottish healthcare system.”⁵⁵

Sustainable Care Pathways and Green Health Activities

190. The patient journey through NHS services is very varied and each service uses different levels of resources with a different environmental impact. Some of the greatest environmental impacts come from patient journeys, the use of energy intensive space and equipment in acute hospitals and the use of tests and supplies. Efforts to reduce these impacts can create wider environmental and health co-benefits.⁵⁶ We will develop a methodology for assessing the environmental impact of different models of care to take account of their environmental impact, including greenhouse gas emissions and the sustainable use of resources, and the environmental and health co-benefits of more sustainable care models when redesigning services.
191. Each Health Board which provides clinical services will establish a sustainable clinical service delivery function as a core part of its Climate Emergency Response Team. This function will support clinical teams across the NHS to make clinical services environmentally and socially sustainable. This will be done through helping clinicians to make sustainability a core consideration in quality improvement work and the planning and delivery of clinical services. By thinking about sustainability in this context, we can help improve patient outcomes and reduce the over-use of natural resources.
192. Increased provision of, and participation in, green health activities has the potential to reduce the need for traditional healthcare. An assessment carried out by NHS Lothian estimated that every £1.00 spent on a green health project, therapeutic gardening in NHS grounds, results in benefits to health with a value of at least £2.00.⁵⁷ In addition to the strong evidence base for green health activities, the evidence for green health prescribing is emerging.^{58 59} Green health prescribing is one of the actions recommended in the Royal College for General Practitioners Green Impact for Health toolkit⁶⁰, and promoted by the Centre for Sustainable Healthcare through their Green Health Routes programme.
193. Four Green Health Partnerships (GHPs) are being piloted in Scotland as part of the [Our Natural Health Service](#) programme to develop a more strategic approach to increasing the use of nature based solutions in delivering health

outcomes. One of the objectives is to use green health prescribing to support those who can most benefit and use the interaction between the person and the health and care system as an opportunity to address health inequalities.⁶¹ Each GHP is different, developing in ways that suit local circumstances and priorities. However, common elements of GHP work programmes include:

- improving access to green health information
- raising awareness of the value of green health within healthcare
- developing referral pathways to green health projects
- promoting the benefits of green health to the public
- developing green health projects and opportunities
- facilitating cross sectoral co-ordination, improved working and networking on health and the environment

194. There are a growing number of examples across Scotland of similar service improvements providing better outcomes for patients and for the environment. For example, NHS Forth Valley embedded a First Contact Practitioner within GP surgeries to improve support for people living with lower limb arthritis. Community based exercise groups were established and at nine months the project showed a 36% reduction in referral rates for orthopaedics and an 18% reduction in physiotherapy referrals. In the same Health Board, switching to outpatient clinics for Haematology, Neurology, Dermatology and Pain has saved over 1000 patient journeys every month.

Actions we will take

195. To reduce the demand for health services and support the creation of more environmentally and socially sustainable models of care we will:
- ✓ embed prevention in all our models of care, both internally and with external partners
 - ✓ develop a methodology for assessing the environmental impact of different models of care
 - ✓ quantify and evaluate the environmental impact and the environmental and social co-benefits of care models when redesigning services
 - ✓ establish a sustainable care clinical planning function as a core part of Health Boards' Climate Emergency and Sustainability Teams
 - ✓ incorporate sustainability into quality improvement and clinical planning
 - ✓ establish and embed GHPs and similar approaches to increasing the use of nature based solutions to deliver health outcomes

Realistic Medicine

196. A major factor that affects the sustainability of our NHS is not patient demand but the relentless increase in the volume and intensity of clinical practice (clinician-led demand). The NHS in the UK has experienced growth of around 4.5% per annum and almost two thirds of it is generated by increases in the volume of activity, or innovation. Less than 10% of the growth is due to the healthcare needs of our ageing population.⁶²

197. The Organisation for Economic Cooperation and Development (OECD) estimate that up to 35% of this increase in clinical activity is likely to be low value treatment and care or waste.⁶³ Low value and futile treatments lead to more patient regret. We know too that all healthcare has potential to cause harm - exposure to radiation from imaging, risks from procedures, and side effects from medication.
198. Over investigation and overtreatment leads to unwarranted variation in health, treatments and outcomes and is likely to be causing harm, while also using up precious resources. As we remobilise and reform services, we must build towards a more sustainable healthcare system that delivers the better value care we are looking for. We need to evaluate the impact of remote prescribing in any new hybrid models of remote and in-person care and weigh the potential benefits of remote healthcare delivery with its potential unintended consequences (increased investigations, referrals, prescribing).

Where we are now

Our health and care system is under significant pressure. We know that demand for health and care services is increasing and the COVID-19 pandemic has accelerated the need to make optimal use of the resources we have and provide better value care - for patients and our system.

By supporting professionals to practise Realistic Medicine and deliver personalised care, practise shared decision making and tackle unwarranted variation in health, treatment and outcomes, NHS Scotland can reduce harm and waste and deliver better value care – better value for patients and for our health and care system.

There are now five Chief Medical Officer annual reports on Realistic Medicine which showcase excellent examples of how we can practise Realistic Medicine. As we remobilise and reform healthcare services, we must build towards a more sustainable healthcare system that delivers the better value care we are looking for.

199. Realistic Medicine is Scotland's approach to providing care that people really value. We want people working in health and social care and people who use those services to think about the values and the behaviours that underpin good experience. We aim to implement Realistic Medicine through sharing decision making between professionals and patients supporting the people we care for to make an informed choice about their treatment and care options. To support this, we will develop a value based healthcare strategy which makes it explicit how practising Realistic Medicine will contribute to sustainability.
200. Realistic Medicine is not about rationing healthcare or saving money. The aim of Realistic Medicine is to improve patient care; ensuring that people receive appropriate and beneficial care that is evidence-based and in tune with their personal preferences.

201. Practising Realistic Medicine has become more important than ever. It will help to deliver greener and more sustainable care. It will help foster a culture where healthcare professionals take responsibility for the resources they use, practise shared decision making and tackle unwarranted variation in order to provide better value care – better value for patients and for our system.⁶⁴
202. To further support the implementation of Realistic Medicine we will:
- ✓ develop a value based healthcare strategy to support professionals to practise Realistic Medicine
 - ✓ carry out specific research to better understand the current barriers to implementing Realistic Medicine on the clinical frontline, and working alongside patients and clinicians to overcome these

Medicines

203. The use of medicines is essential to healthcare but their production and use is also a significant source of healthcare related carbon emissions and environmental harm. To be effective medicines, active pharmaceutical ingredients (APIs) are designed to be biologically active and resistant to metabolic degradation. APIs in the natural environment can cause reproductive failure, growth inhibition, behavioural changes and a loss of biodiversity. They also contribute to the growth in anti-microbial resistant, one of the most serious risks to our continued ability to provide healthcare and treat disease.
204. Residues from medicines which are unused or not properly disposed of or from those that pass through the body can be found in water, soil and sludge and in organisms at all stages of their lifecycles. These can then accumulate in living organisms.
205. Practising Realistic Medicine in relation to prescribing is essential. Enabling shared decision-making results in prescribed medicines being more likely to be taken, reducing medicines waste. Improved processes around regular review of prescribed medicines with patients to address concerns and to amend, change or stop prescribed medicines as needed can all have a positive environmental impact by preventing harm and waste. Part of shared decisions should be considering the environmental impact of individual medicines and this information needs to be available for both clinicians and patients.
206. We are investing in pharmacy support for GP practices through the 2018 General Medical Services Contract. We are further developing our Clinical Decision Support tools and guidance to promote Shared Decision Making, inform patients about their treatment and medication and provide clinicians with up to date evidence based prescribing advice.
207. Reducing wasted medicines has a double carbon benefit as it reduces upstream emissions in manufacturing and distribution and downstream emissions as fewer medicines need to be disposed of.

Actions we will take

208. To reduce the environmental harm caused by medicines we will:
- ✓ work to reduce pharmaceutical waste through improved prescribing, promoting regular medication reviews, deprescribing where appropriate, dispensing, education and patient support
 - ✓ support healthcare professionals to consider environmental impacts when making prescribing decisions by providing them with the information they need
 - ✓ provide pharmacy support to general practice through the 2018 General Medical Services Contract

Inhalers

209. The propellant used in MDIs prescribed for asthma and COPD are powerful greenhouse gases with global warming potentials of 1430 or 3220 times greater than CO₂ depending on the type. Around 4.5 million MDIs were dispensed in Scotland in 2020/21.
210. We estimate that the propellant in MDIs dispensed through NHS Scotland in 2020/21 accounted for 79,000 tCO₂e (see Annex B). This compares to 430,000 tCO₂e from building energy use and is more than the emissions from the NHS fleet and waste combined.
211. Reducing emissions from MDIs is essential to achieving our net-zero goals. But this is also an area where rapid reductions in emissions are achievable. The UK has a high proportion of MDI use (70%) compared with the rest of Europe (< 50%) and Scandinavia (10–30%).⁶⁵
212. Through improvements to the way asthma and COPD are managed, the NHS can improve outcomes for patients and reduce the number of short acting inhalers which are used. Dry powder inhalers (DPIs), which do not use propellant, are also suitable for many patients and have a far lower carbon impact than MDIs. We can reduce emissions through changes in prescribing practices, e.g. implementing regular reviews of patients on MDIs and considering the switch to DPI as part of the review and supporting patients to switch to DPIs where those are suitable for them.
213. The existing British Guideline on the Management of Asthma supports this approach. It states:
- “Prescribers, pharmacists and patients should be aware that there are significant differences in the global-warming potential of different MDIs and that inhalers with low global-warming potential should be used when they are likely to be equally effective. Where there is no alternative to MDIs, lower volume HFA134a inhalers should be used in preference to large volume or HFA227ea inhalers”.*⁶⁶

214. We need to limit our cumulative greenhouse gas emissions as every tonne emitted adds to the climate emergency. We therefore aim to reduce our emissions from inhaler propellant by 70% by 2028. At that point, we will review progress before setting further targets for inhaler propellant emissions on the path to net-zero.
215. To help clinicians change their inhaler prescribing practices to avoid unnecessary environmental harm, we will publish an updated Scottish Quality Respiratory Prescribing guide which will focus on improving patient outcomes, minimising patient over-use of inhalers and supporting patients to use propellant free options where clinically appropriate. MDIs should only be used where they are clinically necessary.
216. Both public and clinicians are generally unaware of the contribution of MDIs to the climate crisis. We will carry out awareness raising campaigns to better inform them of the contribution of MDIs to the climate crisis and encourage them to switch where appropriate.
217. Health Boards will also update their local formularies to support clinicians to prescribe environmentally friendly inhalers.
218. DPIs are not suitable for all patients and so we will support inhaler return schemes to help patients dispose of their used MDIs in a more environmentally friendly way. Used MDIs have residual propellant in them which should be recovered and recycled. Health Boards in the North of Scotland are developing proposals for a pilot scheme which would capture the residual propellant and ensure its reuse.
219. Pharmaceutical companies are working to develop low emissions propellant for MDIs. We will closely follow progress in this area and encourage industry in its efforts.
220. We also recognise that work is needed to reduce the current trend of increasing numbers of children and adults needing environmentally damaging inhalers by addressing the impact of air pollution. This links closely to actions set out in other chapters, which will help to reduce emissions and improve air quality.

Actions we will take

221. To reduce greenhouse gas emissions from inhaler propellant we will:
- ✓ aim to reduce our emissions from inhaler propellant by 70% by 2028
 - ✓ publish an updated Scottish Quality Respiratory Prescribing guide which will focus on improving patient outcomes, minimising patient over-use of inhalers and using propellant free options where suitable for the patient
 - ✓ carry out awareness raising campaigns to better inform patients and clinicians of the contribution of MDIs to the climate crisis and encourage them to switch where appropriate

- ✓ update local formularies to support clinicians to prescribe environmentally friendly inhalers
- ✓ support inhaler return to pharmacy schemes to help patients dispose of their used MDIs
- ✓ closely follow progress by pharmaceutical companies in developing low emissions propellant for MDIs

Medical gases

222. Anaesthetic gases are potent greenhouse gases with global warming potentials far greater than carbon dioxide. These gases are made up of desflurane, isoflurane, sevoflurane and nitrous oxide. This is an area where rapid emissions reductions are possible. Reducing the environmental impact of anaesthetic gases is a priority.

223. Anaesthetic gases used by NHS Scotland contributed to 34,000 tonnes of carbon dioxide equivalent in 2018/19 but by 2020/21 this had fallen to 26,000 tCO_{2e}. While the effect of the pandemic on elective surgical procedures will have played some part in this reduction, a large part has resulted from rapid reductions in the use of desflurane, the anaesthetic gas with the highest global warming potential.

224. Oxygen is the most commonly used medical gas and while, unlike anaesthetic gases, it is not a greenhouse gas itself, the production of oxygen produces greenhouse gas emissions.

Desflurane, isoflurane and sevoflurane

225. The Scottish Environmental Anaesthesia Group has done fantastic work to reduce the use of desflurane in NHS Scotland. Raigmore Hospital in Inverness became the first hospital in the UK to take desflurane off-stock in 2019. A number of other hospitals have now followed by making significant reductions in their use of desflurane, which has a twenty-year global warming potential of 3714 times that of CO₂. NHS Scotland will work to end its use of desflurane altogether and will be supported in this by a National Green Theatre Programme. The rates of the use of desflurane by Health Boards from 2018/19 to 2020/21 are set out in Annex B.

226. New Technologies such as Anaesthetic Gas Capture may allow for further energy efficiency measures, such as switching off Anaesthetic Gas Scavenging Systems (AGSS). The Scottish Government is supporting trials of volatile gas capture technology to determine its efficacy in real-world situations. This will assist in reducing emissions from sevoflurane and isoflurane. However, the environmental impact of desflurane is so much greater than these other gases that the use of capture technology will not sufficiently prevent the harm caused by it.

Nitrous oxide

227. Nitrous oxide is another example where medical gas emissions can be reduced rapidly. Pioneering research at the University of Edinburgh has shown

that a very large proportion of medical nitrous oxide emissions do not actually result from clinical use. As a consequence, the Scottish Government has established a Medical Nitrous Oxide Mitigation Programme to support Health Boards with making rapid reductions in these emissions and to work with other health services within the UK and beyond to share best practice. Our aim is to achieve zero emissions of nitrous oxide by 2027 by reducing waste and capturing and safely disposing of the gas we do use.

Oxygen

228. The environmental impact of the use of medical oxygen largely arises from the greenhouse gases that are emitted to produce it. We will launch a quality improvement campaign to optimise the use of oxygen and support efforts to produce medical grade oxygen as a by-product of Scotland's growing hydrogen industry. Green hydrogen is produced through the electrolysis of water decomposing it into hydrogen and oxygen using renewable electricity.

Actions we will take

229. To reduce emissions from medical gases and the ozone depleting effects of nitrous oxide we will:

- ✓ establish multidisciplinary project teams within Health Boards to work towards zero emissions of anaesthetic gases at each acute site within their area
- ✓ work to end use of desflurane
- ✓ support trials of volatile gas capture technology to determine its efficacy in real-world situations
- ✓ launch a quality improvement campaign to optimise the use of oxygen
- ✓ support efforts to produce medical grade oxygen as a by-product of Scotland's growing hydrogen industry

Green theatres

230. Our aim is for every NHS Scotland theatre to be a Green Theatre. To support Health Boards with this, a National Green Theatre Programme is being established to provide advice and guidance. Health Boards will adopt the learning from NHS Highland's Green Theatre Project.

Where we are now

Theatres are high carbon and energy intensive areas which produce high volumes of waste. Single use items are more and more common while reusable surgical instruments have a lifetime carbon impact through requirements for sterilisation and transportation.

Perioperative waste accounts for around a third of all NHS Scotland's clinical waste. Each operating theatre can produce 2300kg of anaesthetics gas waste and 230kg of sharps waste per year. The opportunities for carbon reduction are significant and achievable reductions can be targeted.

Actions we will take

231. To support the development of more sustainable surgery, we will:
- ✓ establish a National Green Theatre Programme
 - ✓ review high volume single use products used in theatres and their environmental impact
 - ✓ review controls of theatre air and scope the potential for investment in systems to make improvements including sensor controls
 - ✓ review the cost and carbon savings in moving over to systems for:
 - fluid capture and disposal
 - patient warming in neonatal, paediatric & perioperative care
 - efficient fluid warming equipment
 - ✓ investigate efficient practices to reduce power consumption and switching off the AGSS when not in use
 - ✓ increase waste segregation at point of use
 - ✓ introduce reusable sharp boxes

Supporting primary care

232. Primary care has a significant environmental impact in areas such as prescribing. Not only are there opportunities to reduce the health service's negative environmental impact, but there are opportunities to promote activities which benefit people's health and the environment. NHS Scotland can do this through integrating green health prescriptions and signposting into clinical pathways, making better use of our outdoor spaces for health and wellbeing, and supporting community green health activities such as gardening, conservation, cycling, walking and swimming. Health Boards and Health and Social Care Partnerships will work closely together with each other and NHS independent contractors (GPs, dentists, community pharmacies and optometrists) to both minimise the environmental impact of primary care services and maximise the benefits to health and the environment.

Where we are now

The vast majority of people's contacts with the NHS is through primary care services such as general practice, community pharmacy, dentistry and optometry. Primary care has the largest reach to our communities and plays an important role in helping people to stay healthy and manage their conditions, preventing them from needing hospital care. These services will also play an important role in helping to create a more sustainable health service.

233. Primary care has an essential role in many of the actions in this strategy such as reducing emissions from inhaler propellant. This section of the strategy sets out actions which relate specifically to primary care services. It does not restate actions which primary care is already an integral part of it.
234. The Scottish Government is committed to supporting a shift to a model of GP premises ownership where GPs are no longer expected to provide their own

premises.⁶⁷ We will work with general practice to support the transition to renewable heating, especially as these premises will increasingly become the direct responsibility of Health Boards.

235. We will also support general practice to become more sustainable through working with the Royal College of General Practitioners to support the use of the Green Impact for Health toolkit.

236. Community pharmacy has an important role in reducing the environmental harm resulting from the use and over-use of medicines. We will support medicine return to pharmacy schemes to reduce the risk from AMR and the environmental harm caused by unused medicines being thrown in general waste, poured in the sink, or flushed down the toilet.

237. Sustainability in dentistry has increased its profile as NHS Scotland has launched a three-pronged strategy to tackle waste:

- ✓ a collaborative procurement scheme for NHS dentists in Scotland, which influences the range and type of disposable items that practices can purchase
- ✓ joint working with 'Zero Waste Scotland' to move practices from using non-recyclable white plastic cups to others that are recyclable
- ✓ a new waste contract that provides opportunities to recapture recyclable items, allowing practices to contribute to the circular economy

238. The procurement scheme will move suppliers towards tagging products using a red, amber, and green traffic light system identifying those which can be recaptured and contribute to the circular economy and allowing practices to make positive buying choices. The contract will also be more ambitious in helping dental practices contribute to the circular economy by capturing recyclables. Our strategy for dentistry is intended to encourage innovation, increase sustainable purchasing and meet environmental targets through reducing waste.

Sustainable Communities

‘The severity of the impact of climate change on health is increasingly clear. Climate change undermines the social and environmental determinants of health, including people’s access to clean air, safe drinking-water, sufficient food and secure shelter’ - World Health Organisation⁶⁸

239. The climate emergency undermines the foundations of good health and deepens inequalities for our most deprived communities. The NHS touches every community in Scotland. We have a responsibility to use our abilities as a large employer, a major buyer, and one of the most recognised brands in the world – an ‘anchor’ organisation – to protect and support our communities’ health in every way that we can. We will work together with our partners, including local authorities, community groups and Public Health Scotland, to bring sustainability, better health and fairness to all communities.

240. The earlier sections of this strategy aim to embed sustainable practice within the NHS. In this part of the strategy, we set out our plans to support sustainable practices in our communities and neighbourhoods. It includes the following topics:

- supporting health and wellbeing
- building community resilience
- engaging our communities

Supporting health and wellbeing

241. For people to stay healthy, we need to keep our planet healthy. Increasing scientific evidence shows that the climate and nature emergency is harming human health in a variety of ways. For example, the threat from air pollution (due to harmful emissions from transport and buildings), heat-related illness and mortality, worsening severity of pre-existing respiratory conditions, increased prevalence of vector-borne disease, physical injuries and the mental health impacts associated with climate-related events such as flooding.

242. Playing a positive role in our communities starts with minimising our own impact on the environment. In earlier sections of the strategy, we have committed to actions under the following which will have a positive impact on people’s health and wellbeing:

- reducing our greenhouse gas emissions
- sustainable development of the NHS estate
- promoting active, public and community transport
- sustainable procurement
- Our Natural Health Service

243. We will work to ensure that our own facilities and ways of working support people’s health, both locally and to minimise the impacts of global climate change.

The Covid-19 pandemic has starkly highlighted the inequalities in our society that we must address, and our participation in the 'Covid Recovery Strategy: for a fairer future' actions and partnerships to redesign and rebuild services will contribute to this work.

244. Where people live in Scotland should not undermine the work of the NHS by creating or worsening health problems – we need to work on the causes of poor health as well as the solutions. The NHS can contribute to foundations of community health particularly through providing health-promoting environments (air and water quality, access to greenspace and active travel), accessible and effective health and care services, social connection, inclusion and empowerment and inclusive economic conditions.⁶⁹

Sustainable places

245. We all want Scotland to be a place where everybody thrives and has a better quality of life. Vibrant, healthy, safe and sustainable places are key to improving health and wellbeing and reducing inequalities. The growing threat to public health from the climate emergency increases the need for action. We all have a clear responsibility to respond in a way that nurtures good health for the population and the planet.

246. Rural and urban green spaces, such as parks, playgrounds, and gardens, can promote mental and physical health by reducing stress, supporting physical activity, and enabling people to come together. They can also help reduce exposure to the damaging effects of air pollution, noise, and excessive heat. Good access to high quality services, active travel options and sustainable, resilient public transport also contribute to health, and we will work to support this both on our own sites, and beyond them.

247. There are many opportunities to support people's physical health, mental health and wellbeing through time outdoors as active travel and as recreation. We will work with local communities to find the best and most important actions for each area, including doing our part to reduce air pollution and advocate for new ways to work and travel.

248. Living in vibrant, healthy and safe places and communities is one of Scotland's public health priorities.⁷⁰ The NHS will play an active role in Community Planning Partnerships and in supporting local authorities to prepare their local development plans for their local communities, providing the public health evidence needed to help develop sustainable places which support health.

249. The Covid-19 pandemic has made everyone more aware of the need to improve access to greenspace. However, survey data showed sharp inequalities in visiting green and open space during lockdown, with those most likely to benefit being least likely to access greenspace. We know that deprived neighbourhoods

have poor quality green space and that this contributes to health inequalities. We will look at equality of access to green (and blue) spaces and green health activities. In areas where there is limited or unequal access, we will prioritise enabling access to NHS greenspace.

Community Wealth Building

250. The Community Empowerment (Scotland) Act 2015 has helped to start community conversations about the use of and access to NHS buildings and land. We recognise the wide-ranging social benefits that stem from greater diversity of ownership. We will encourage ideas and innovative approaches to support communities in successfully taking more control in decisions about how NHS land and property assets are used.

251. Community wealth building is a key part of the Scottish Government's approach to delivering a Wellbeing Economy,⁷¹ supporting growth that delivers thriving communities, a fair society and is environmentally sustainable. The NHS will support this by offering fair, stable and inclusive work, maximising community benefits through procurement and by making it clear how people can get involved and influence decisions.

252. Transparency and communication can support community wealth building in practice (linked to the LRRS protocols and guidance in the Sustainable Buildings and Land section of the strategy). We will work with other partners and local communities to share information about NHS land and identify opportunities to collaborate on development, use and management where possible. We will publish contact details of named contacts for land and buildings in line with the information that will be detailed in the Land Register and Register of Controlled Interest in Land.

253. We will also ensure that community engagement practices meet the Scottish Government Place Principal and the standards set out in the Scottish Government Guidance on Engaging Communities in Relation to Land and the National Standards for Community Engagement.⁷²

Actions we will take

254. To support the health and wellbeing of our communities we will:

- ✓ actively manage and protect our greenspaces to improve provision, access, quality and regular use (for example, increasing use for community food growing)
- ✓ work with community groups and volunteers to support nature based activity on site promoting climate change, biodiversity and sustainability, as well as locally grown food
- ✓ work with local authorities to ensure the NHS estate contributes to local open space strategies and that our green spaces are well linked to other local greenspace and active travel networks

- ✓ maximise the potential benefits of the NHS in its role as an ‘anchor organisation’ providing good local employment options which generate community wealth
- ✓ maximise community benefits through procurement
- ✓ encourage ideas and innovative approaches to support communities in successfully taking more control in decisions about how NHS land and property assets are used
- ✓ work with other partners and local communities to share information about NHS land and identify opportunities to collaborate on development, use and management where possible
- ✓ publish contact details of named contacts for land and buildings in line with the information that will be detailed in the Land Register and Register of Controlled Interest in Land
- ✓ ensure that community engagement practices meet the Scottish Government Place Principle and the standards set out in the Scottish Government Guidance on Engaging Communities

Building community resilience

255. Strong and healthy communities support people to be resilient to the changes in the world around us. A resilient community is socially connected and has accessible health systems that can withstand disaster and foster community recovery. Resilient communities promote individual and community physical, behavioural, and social health to strengthen their communities for daily, as well as extreme, challenges.⁷³ In the earlier sections of the strategy we have committed to actions under the following which will support resilient and healthy communities:

- sustainable development of the NHS estate
- adapting to climate change impacts
- valuing, protecting and managing our greenspace
- reducing the need to travel
- disruption to travel
- circular economy
- sustainable procurement

256. The Covid-19 pandemic may have long term implications for the resilience of the health and social care sector. It has caused an additional stress on the health and social care system due to increased demand and additional pressures on local finances. More positively, the impacts of Covid-19 have raised awareness of the importance of understanding the threats that can disrupt lives and livelihoods.

Climate change impacts on communities

257. Climate change affects everyone, but the health and wellbeing impacts will be felt disproportionately by some groups. Increased temperatures, flooding, coastal change, and water scarcity are likely to impact children and young people, older adults, people with disabilities and long-term health conditions, and people living

on a low income the most. Communities and individuals who are most exposed to the effects of climate change will need additional support.

Where we are now

Many communities across Scotland are threatened by flood risk, but some are more disadvantaged than others. Flood disadvantage (the combination of living in an area at flood risk and the degree to which socially disadvantaged communities are disproportionately affected by flooding) is greatest in coastal areas, dispersed rural communities and declining urban cities. Pockets of flood disadvantaged communities exist across Scotland. However, Glasgow and the wider City Region constitute a significant area of concentration. Coastal communities have a higher proportion of flood disadvantaged than areas located further inland. Falkirk, West Dunbartonshire, Highland and Dumfries and Galloway have the highest number of extremely and acutely flood disadvantaged. Coastal areas also have a higher proportion of extremely/acutely flood disadvantaged than areas located further inland, including Falkirk, West Dunbartonshire, Highland and Dumfries and Galloway.⁷⁴

Higher temperatures are likely to exacerbate existing health conditions, particularly cardio-respiratory conditions, and are also dangerous for the very young and older people who have a lower ability to regulate their own body temperature. Those on low incomes are also likely to be affected more due to poorer housing conditions. Increasingly patients are cared for at home where possible and therefore the thermal comfort of their homes will contribute to overall health outcomes.

With an ageing population, it is also important to consider the adaptability of homes for each stage of life to help manage increasing ill health. Improving thermal comfort in homes is an all-round positive solution improving the health and wellbeing of occupants and helping to reduce greenhouse gas emissions.⁷⁵

258. We will work with our partners to support and encourage improvements in planning, housing and transport that recognise the potential impacts of climate change on health and to ensure that different population groups in society are not further disadvantaged. For example, NHS Western Isles is working alongside community planning partners to improve understanding of climate change impacts in the Outer Hebrides across organisations and communities and develop adaptation actions for inclusion in the Local Outcomes Improvement Plan.

259. The NHS Scotland Standards for Organisational Resilience⁷⁶ also requires that consideration is given to the non-traditional disaster response role of community healthcare settings, such as the provision of water, food, and shelter for an affected community. Plans should be in place to provide a healthcare

response to people in the community following extreme weather events, especially those who are vulnerable, as part of the local multiagency recovery plan.

Increasing social capital

260. Building social connectedness is an important emergency preparedness action. Social capital is the term used to describe the benefits for people and groups of being and feeling connected with other people and part of communities. People are more empowered to help one another after a major disturbance in communities when members are regularly involved in each other's lives.
261. Developing social capital is a way to tackle the health inequalities that result from social isolation, low levels of support and low self-confidence. Increasing confidence, increasing a sense of connectedness and belonging and the ability to bring about change in people's own lives are all things which help to protect mental health.
262. Positive mental wellbeing can lead to improvement in lots of ways including physical health and higher educational attainment, as well as improved outcomes for employment, parenting, relationships, reducing crime and quality of life.
263. We will support opportunities for people and groups to form connections in a variety of ways including through the creative arts, volunteering, education, befriending, spirituality and access to NHS greenspace and green health activities through the Our Natural Health Service Programme and local GHPs.

Access to fair and green jobs

264. The actions set out in this strategy to achieve our aim of becoming a net-zero, sustainable health service also provides opportunities to support access to fair and green jobs. We will identify opportunities to embed community benefits which support the green jobs agenda, including through apprenticeships, supporting SMEs, third sector and supported businesses, supporting return to work and providing training and skills development.

Child poverty

265. Children and families living and growing up in poverty and low-income households experience many disadvantages which can have negative health and social consequences throughout their life. Families may not have access to sufficient resources to lead a healthy lifestyle, including access to affordable healthy food, good-quality housing, adequate home heating and affordable social and cultural opportunities. We will identify opportunities for supporting local food growing strategies at NHS sites and heat and energy efficiency projects which will help to reduce fuel poverty.

Actions we will take

266. To support strong, healthy and resilient communities we will:

- ✓ work with our partners, including Public Health Scotland, to understand the risks to each area and different population groups
- ✓ support our patients, staff and partner organisations in creating homes, communities and transport networks that increase resilience and minimise the impact on climate change
- ✓ work with our partners to increase community resilience to climate change impacts
- ✓ develop appropriate emergency planning procedures for flooding, major outbreaks of disease and other risks that we know have become more likely due to the climate emergency
- ✓ consider the non-traditional disaster response role of community healthcare settings and ensure plans are in place to provide a healthcare response to people in the community following extreme weather events
- ✓ support opportunities for building social capital and connectedness, access to fair and green jobs and tackling child poverty

Engaging our communities

267. Empowering communities to participate in shaping the places they call home is key to creating happy and sustainable communities.⁷⁷ We want to have more engagement with local communities and partner organisations in the design or redesign of services to maximise community benefit. There are good examples and excellent work underway but we know that more can be done. We also want to make sure that we promote inclusion and hear from a diverse range of voices.
268. Although issues such as housing, planning, design and transport lie outside the traditional remit of the health service, they all have a significant role to play in achieving good health outcomes and can be seen as an important and influential element of the public health workforce. Public Health Scotland and local public health teams will engage with local authorities, the third sector and community planning partners to advise on the health and climate impacts of development and opportunities for reducing health inequalities.
269. The actions set out in this strategy will also help to support the necessary behavioural changes needed by our staff, patients and local communities in contributing to social and environmental sustainability and reaching net-zero. Examples include improvements to active travel routes and supporting facilities, improving access to local green health activities, electric vehicle charging points and targeted campaigns such as promoting energy efficiency measures and warm homes.
270. The Place Standard tool has been used extensively across Scotland and internationally, receiving recognition from the World Health Organization. Part of the success of the tool has been its ability to create meaningful, structured conversations around the complex issues within places, allowing local people, decision-makers and other interests a common platform to assess the existing and future potential of an area.

271. The Scottish Government, Public Health Scotland, Adaptation Scotland, Sniffer and the Sustainable Scotland Network are working together to develop a climate lens to work in conjunction with the Place Standard Tool. This will support community place making to better understand how climate change will impact communities locally, and the sort of actions that can be taken to build resilience and reach net-zero. We will promote the use of the Place Standard tool and climate change resource both within the NHS and within communities.

Actions we will take

272. To increase our engagement with local communities and partner organisations we will:

- ✓ promote more, and clearer, inclusion of local communities in decision making
- ✓ raise awareness of how sustainable living supports wellbeing including place-based working
- ✓ work with local authorities and others on planning, providing good access to services, active travel options and public transport both on our own sites, and beyond them
- ✓ increase use of the Place Standard and climate change resource both for our own work and together with partners and local community groups
- ✓ explore new and innovative ideas for sustainable and green improvements to services and community use

Getting Involved

273. Already, networks of people have come together across NHS Scotland to work on making the health service more sustainable. Green Anaesthesia Scotland is a fantastic example of a grassroots group which has created real change. Thanks to their work, a number of Scottish hospitals have significantly reduced their use of desflurane, a potent and volatile greenhouse gas. To support existing networks, the formation of new ones and to make it easier to get involved, the [NHS Sustainability Action](#) website will include a directory for grassroots groups to publish their details so that people who want to join and work with them can get in touch more easily.
274. We have also developed Active Global Citizenship resources to increase knowledge and understanding of the UN SDGs within NHS Scotland and are available to NHS staff who wish to engage their colleagues in wider global issues and sustainability: www.scottishglobalhealth.org/active-global-citizenship.
275. The people who work within the NHS and use its services have fantastic ideas on how to make it more environmental and socially sustainable. If you have an idea you wish to share, please do so at: nhssustainabilityaction.co.uk.

Annex A – Building Energy Efficiency Measures

1. These are the building energy efficiency measures that Health Boards will work on implementing in the period 2022 to 2026:
 - a. **BMS (Building Management System), Controls and Plant Improvements**
 2. Current BMS systems in hospitals should be updated and expanded, preferably using an open standard protocol, to allow for improved monitoring and full remote control, with the assistance of Health Board IT departments.
 3. Upgrades of air handling unit fan, motor, motor drives and circulation pumps to the highest standard are necessary, as well as installation of heat recovery systems.
 4. All fan and pump motors should have differential pressure switches fitted to them for auto changeover via the BMS.
 5. Air Handling Unit (AHU) filters should be fitted with a Differential Pressure (DP) sensor which constantly monitors DP across each filter. Each filter DP should be properly configured to provide a Red, Amber and Green status so that filters are changed at the correct time, both from a health perspective but also from an energy conservation perspective as well.
 - b. **Energy management & sub-metering**
 6. Savings for electricity, heating fuels and water can be generated through:
 - setting up green teams with local responsibility for energy use
 - allocating an energy manager to monitor and take actions on collected data
 - setting site-by-site benchmarks and targets
 - conforming to ISO 50001 or equivalent
 - carrying out regular staff energy awareness training
 - installing smart fiscal meters on all of our smaller properties for electricity and water
 - sub-metering of major plant
 - analysis of data via our NHS Scotland – Energy Monitoring and Targeting system
 - where feasible, installing smart heating controls in all properties that do not have a BMS system
 - c. **Building improvements**
 7. Improvements to buildings can reduce heat loss and energy consumption. All Health Boards will take the following actions:
 - install LED lights where they are not already in use
 - replace windows and doors on a maintenance basis with highly insulated units

- take forward a programme to install roof and wall insulation where possible to improve thermal performance and air tightness

Annex B – Data

1. This section sets out data which is currently available at a national level for NHS Scotland and highlights areas where there is currently a lack of robust data.

Building emissions

2. NHS Scotland has comprehensive data for its energy use for heating and power which is collected through a national reporting system. NHS Scotland's emissions from heating and electricity reduced by 4.4% between 2019/20 and 2020/21. Those emissions from territorial Health Boards have fallen by 64% between 2020/21 and the baseline year of 1989/90.

Energy Resources	Use (kWh)	% Use	CO₂ equivalent (tonnes)	% of energy emissions
Gas kWh	1,390,542,787	70.7 %	288,927.0	67.0 %
Electricity	440,294,053	22.4 %	111,478.1	25.8 %
Heavy Fuel Oil	35,259,840	1.8 %	11,230.6	2.6 %
Gasoil (Class A2)	25,648,985	1.3 %	8,094.8	1.9 %
Biomass Pellets	25,308,385	1.3 %	1,338.6	0.3 %
Gasoil (Class D)	15,641,448	0.8 %	4,936.4	1.1 %
Biomass Woodchips	12,400,598	0.6 %	289.8	0.1 %
District Heating	7,941,323	0.4 %	1,576.8	0.4 %
LPG	6,347,280	0.3 %	1,527.9	0.4 %
Kerosene	5,848,353	0.3 %	1,742.6	0.4 %
Derv	692,257	0.0 %	218.5	0.1 %
Renewable Electricity	493,198	0.0 %	0.0	0.0 %
Total	1,966,418,507		431,361.0	

NHS Scotland energy use 2019-20 to 2020-21

3. The following table sets out the changes in buildings energy use and associated emissions from 2019/20 to 2020/21.

Reporting Year	Energy Use (kWh)	CO₂ equivalent (tonnes)
2019/20	2,006,978,566	451,102.7
2020/21	1,966,418,507	431,361.0
Variance	-40,560,059	-19,741.7
%Variance	-2%	-4.4%

Change in territorial Health Board emissions since 1990

4. The following table sets out the change in emissions for NHS Scotland's territorial Health Boards since 1990 – the year against which statutory emissions reductions targets are measured. The eight special Health Boards are not included due to a lack of robust data for 1990. For example, the State Hospital did not form part of the NHS at that point and the Golden Jubilee Hospital had not yet been built. The 14 territorial health boards were responsible for 95.9% of NHS Scotland's overall reported energy use in 2020/21.

Reporting Year	Energy Use (kWh)	CO ₂ equivalent (tonnes)
1989/90	3,202,999,261	1,147,018
2020/21	1,885,891,393	413,579
Variance	-1,317,107,868	-733,439
% Variance	-41.1%	-63.9%

Travel to main hospital sites

5. Data gathered by individual NHS Boards suggest that current rates of travel to main hospital sites by staff, patients and visitors are approximately:

- Active travel: 2.8% of journeys
- Public Transport: 7.4% of journeys
- Car use: 89.2% of journeys.

6. However, as noted in the section on sustainable travel, surveys of this nature are infrequent and we will undertake work to improve the reliability of this data. To address this, we will carry out annual travel surveys at each of our sites to monitor shifts in modes of transport in travel to and from NHS sites.

Fleet

	Electric Vehicles	Fossil Fuel / hybrid	Total	% Electric Vehicles
NHS Scotland	646	3201	3847	17

Business travel

7. We do not currently have reliable national data for NHS business travel and we will work to improve this as part of the implementation of this strategy.

Waste data

8. We recognise that there are gaps in our waste data and are working to improve the quality of it. The following data is drawn from the statutory annual climate change reports of the nineteen Health Boards which are required to submit reports and is therefore incomplete.

Type of waste collected	NHS Scotland total - 2019/20 (tonnes)
Residual (domestic) waste collected	15,440
Material collected for recycling	7,457
Clinical waste	9,029
Total waste arisings	31,926

Medical gases

9. The following tables sets out data on medical gas usage by NHS Scotland in 2018/19, 2019/20 and 2020/21. The emissions from gases all decreased in 2020/21, most likely as a result of the disruption to elective surgery procedures caused by the Covid-19 pandemic. However, the decrease in the use of desflurane between 2018/19 and 2019/20 is consistent with reports of individual hospitals choosing to use other methods of anaesthesia.

Table 7: Medical gas usage in NHS Scotland, 2018/19 to 2021/22 – tCO₂e				
	2018/19	2019/20	2020/21	2021/22
Piped Nitrous Oxide	9586	9385	7764	6717
Portable Nitrous Oxide	789	790	392	733
Piped Entonox®	14287	14677	14078	14666
Portable Entonox®	3612	9385	7764	6717
Isoflurane	122	120	59	42
Sevoflurane	1123	1136	657	605
Desflurane	6178	2427	787	441
Total	35697	32047	26511	26554

Table 8: Desflurane as a % of total Volatiles by volume				
Health Board	2018/19	2019/20	2020/21	2021/22
Golden Jubilee Hospital	2.0	0.4	3.4	2.1
Ayrshire & Arran	31.1	20.6	13.9	4.3
Borders	10.2	0.0	2.8	4.9
Dumfries & Galloway	10.8	3.8	1.8	1.7
Fife	6.2	2.0	4.2	0.6
Forth Valley	10.1	0.2	1.4	0.0
Grampian	30.1	15.7	11.0	14.1
Greater Glasgow & Clyde	26.0	10.5	6.2	2.5
Highland	9.4	0.0	0.0	0.0
Lanarkshire	29.7	10.5	3.5	0.7
Lothian	19.3	11.6	5.0	6.1
Orkney	28.7	34.9	38.3	12.1
Shetland	16.8	12.4	27.0	21.5
Tayside	8.9	5.0	4.8	0.0
Western Isles	17.1	7.2	0.0	11.8

Inhalers

10. The table below sets out information on the number of MDIs and DPIs prescribed by GP practices and dispensed in Scotland in 2019/20 and 2020/21. The number of items refers to the number of prescribing instances - the opportunities a prescriber has had to choose the type of inhaler they wish to prescribe. The number of packs refers to the number of inhalers or packs of capsules for inhalation dispensed.

Financial Year	Inhaler Type	Number of Items	% of total	Number of Packs
2019/2020	Dry powder	1,749,454	32.4	2,453,916
2019/2020	Metered dose	3,655,581	67.6	4,855,652
2020/2021	Dry powder	1,611,486	31.9	2,270,806
2020/2021	Metered dose	3,434,472	68.1	4,507,142

11. The table below sets out the estimated emissions from the propellant in MDIs prescribed and dispensed in Scotland between 2018/19 and 2020/21. This has been calculated using the assumption in the [UK Greenhouse Gas Emissions inventory](#)⁷⁸ of MDIs containing an average of 12g of propellant per inhaler.

12. There are currently two types of propellants used in MDIs: HFA-134a and HFA-227ea.

	2018/19	2019/20	2020/21
Annual Total CO₂ Equivalent (kg)	79,535	84,844	78,860

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The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80435-681-4 (web only)

Published by The Scottish Government, August 2022

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1114582 (08/22)

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