



Royal College
of Physicians

Green physician toolkit

July 2024



Introduction

Climate change is one of the biggest threats to human health, and is projected to cause an excess of 250,000 deaths per year by 2050. More than half of this excess mortality is projected to take place in Africa, but the UK will not be immune from the direct effects of extreme heat and flooding events, or the inevitable arrival of climate refugees.

The climate crisis will undoubtedly cause significant additional pressure for the NHS. 2022 was the hottest year on record in the UK, causing nearly 3,000 excess deaths during five heat periods – the highest number in any given year. This situation is set to worsen. According to the UK Health Security Agency (UKHSA), heat-related deaths could increase 580% (10,889 per year) between now and the 2050s in a high-warming scenario with no further climate adaptation.

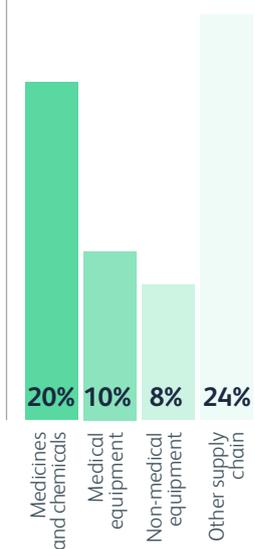
Those working in the NHS will be some of the first to see the health effects of climate change, if they have not done so already. A growing number of patients are projected to present in hospitals with climate-related health conditions, and it is important that physicians know how to respond. It can be challenging to prioritise sustainability at a time when there is very high demand for clinical care, but this can ultimately deliver wider benefits for population health – and in turn reduce pressure on the NHS.

Not only will the NHS be required to respond and adapt; it must also look at its own contribution to climate change – the NHS is responsible for around 40% of the UK’s public sector emissions and 4% of total emissions. With the passing of the Health and Care Act 2022, the NHS became the first health system to embed a commitment to net zero into legislation. NHS England (NHSE)’s plan for delivering a net zero health service by 2040 for the emissions it directly controls sets out the system-level interventions that will be required to achieve this ambition – through changes to travel and transport, supply chain, estate and facilities and medicines.

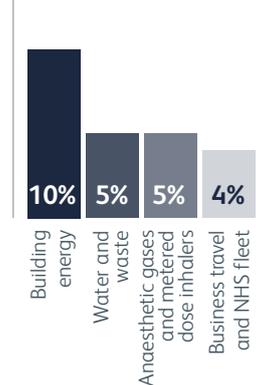
As the employer of over 1.4 million hospital and community health service staff, the plan recognises the important role of NHS workers in protecting people’s health by reducing the environmental impact of healthcare delivery in the UK. Both collective and individual actions help to mitigate the health impacts of climate change.

The Royal College of Physicians (RCP) has created the *Green physician toolkit* to bring together evidence on this issue, and suggest actions that physicians can take in their day-to-day practice.

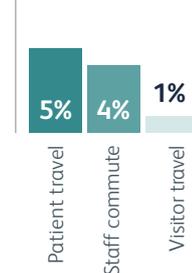
Medicines, medical equipment and other supply chain



NHS carbon footprint



Personal travel



Commissioned health services outside NHS



* Source of [NHS carbon emissions](#)



Tool 1: Understanding the link between climate change and health in the UK



Building an understanding of the links between health and climate change is an important first step towards adapting to and mitigating the severity and effects of climate change.

1

Burning of fossil fuels (oil, gas and coal) releases carbon dioxide into the air, causing:

- > increasing land and air temperatures
- > extreme weather events
- > melting sea ice and glaciers
- > warming oceans and rising sea levels
- > air pollution.



2

Climate change is already impacting health:

- > 3,271 excess deaths in England during summer 2022
- > 28,000–36,000 deaths annually from outdoor air pollution
- > Depression, anxiety and PTSD among populations exposed to flooding in the UK.

3

Some groups are more vulnerable than others, including:

- > older people
- > infants and children
- > people with pre-existing health conditions and disabilities
- > coastal and low-lying populations
- > people experiencing homelessness.



4

UKHSA projects it to get worse:

- > annual heat-related deaths could increase by 580 % in the 2050s
- > an increase in cold-related deaths
- > 61 % increase of people at flooding risk by 2050.



Tool 2: High-level actions to improve the sustainability of your practice

There are simple things all physicians can do to help slow the pace of climate change and adapt to its effects. Clinicians and other healthcare professionals in the NHS can play a vital part in improving the sustainability of healthcare by making changes to their practice and the way that care is delivered.

All such changes, large or small, make an important contribution to reducing the health service's impact on the environment and climate change.

Reduce unnecessary prescribing

- Ensure both initiation of medication and ongoing use is decided in collaboration with patients by using [shared decision-making guidance](#).
- To reduce the burden of medications that are no longer useful (or on balance harmful) tools are available to support deprescribing, such as [Medstopper](#) and [PrescQIPP](#).

Generate less waste

- **Check medication adherence** in every contact with patients, [minimising disposal of unused medication](#).
- **Reduce product expiry** by placing them in [the most accessible position when replenishing stock](#).
- **Prescribe carefully** and advise patients to:
 - not flush pills down the toilet, as this contaminates water supplies
 - return old or unwanted medication to pharmacies
 - [return empty packaging to pharmacies to be recycled](#).
- **Use single-use plastic, such as PPE, (eg gloves) where clinically appropriate**.
- [Make the switch from IV to oral antibiotics](#).
- [Make sure to use the right bin](#).

Limit diagnostic activities where clinically appropriate

Reduce blood testing

- **Think twice:** Before making a request, consider if the test is essential.
- **Check twice:** Check if tests have been done recently (in primary or secondary care) and whether they need to be repeated.
- **Order once:** Check with the lab if additional tests can be added onto existing samples taken within the past days to a week. Plan what is going to be requested in the coming hours/days and combine tests where possible.
- **Take care:** Samples sent in the wrong containers or with insufficient sample need to be repeated.
- **Audit:** Undertake audits of departmental or organisational practice to ensure sustainable testing is optimised.

Reduce diagnostic imaging

- Consider if an imaging referral is essential.
- Review the patient's history to determine if imaging has been completed recently.
- Use the Royal College of Radiologists [iRefer tool](#) to improve the appropriateness of referrals.



Advocate for sustainable practices

- > Within your team or department, encourage:
 - sustainable quality improvement projects
 - more adoption of sustainable practice
 - other colleagues to advocate for action.
- > In your organisation:
 - identify your sustainability lead clinician and the sustainability lead on the board
 - incorporate climate change and sustainable healthcare as a standing item in all clinical governance meetings
 - encourage active travel options for staff and patients
 - advocate for organisational change such as divestment from fossil fuel companies and implementation of green plans.

Limit the environmental impact of travel

- > Offer **remote consultations and remote monitoring** where clinically appropriate and when technology allows.
- > Work remotely on non-clinical shifts.
- > Use more **active travel**, such as walking, cycling, using public transport and car-pooling with colleagues.
- > Where appropriate, look for opportunities to communicate digitally, thus reducing road transportation-related pollution, as well as energy use and printing costs.

Participate in the Green Team competition

If you would like your organisation to run a competition through the Centre for Sustainable Healthcare, you should:

- > find out who to speak to in your organisation (eg quality improvement, procurement, or sustainability leads)
- > send identified staff an introductory email and ask for a meeting using [this template](#)
- > meet with identified staff to explore how the competition can support your organisation's sustainability priorities.



Communicating with patients about climate change

You are uniquely placed as a trusted member of the community to discuss public health threats with patients. Health professionals can help their communities understand how climate change will affect their health, and how to protect themselves.

Here are some [tips from the World Health Organization](#):

1. Keep your message simple and repeat it often
2. Focus on human health
3. Understand your local context
4. Don't use jargon
5. Empower people to make good decisions about their health
6. Talk about the health benefits of climate action
7. Tell stories to connect with people
8. Avoid polarising language
9. Talk about climate change during extreme weather events
10. Don't debate the science.

Here are [some examples](#) of what you could say to patients:

- > Climate change means heatwaves are becoming more frequent. Here's how heat can affect your health, or how your medication can make you more vulnerable to heat.
- > When cars burn petrol, they emit toxic air pollutants that can be bad for your health. Remember to carry an inhaler, avoid busy roads where possible and consider wearing a mask outside.

Adopt key adaptation strategies

The [Centre for Sustainable Healthcare's](#) adaptation strategies for health workers:

- > Identify patients and patient groups within your care who are at risk of climate impacts (air pollution spikes, cold and hot weather) – frail and older people, young children, pregnant women and those with pre-existing long-term health conditions are most vulnerable.
- > Work with colleagues and across departments to learn more about building capacity within care pathways to deal with disruption to services.
- > Be alert to the mental health impacts of climate change, including [eco-distress](#) and depression/anxiety/PTSD [related to flooding](#).



Tool 3: Case studies

Staff across the NHS are working hard to address sustainability and climate change in their clinical practice every day. There are many examples across the physician community that exemplify good sustainable practice that you may be able to apply to your own work.

Case study 1 SENTINEL Plus

Asthma is a common long-term health condition and cause of mortality in the UK. Use of short-acting beta agonist inhalers (SABA) can relieve immediate symptoms of asthma but does not address the airway inflammation which causes asthma. By switching to MART therapy (maintenance and reliever therapy), which includes a small dose of a controller (inhaled steroid) as well as a reliever, asthma control improves, resulting in fewer symptomatic asthma episodes. This results in less overall use of inhaler canisters (whether pressurised metered dose inhalers or dry powder).

More than 21 million SABA inhalers are prescribed each year in England, 94% of which are greenhouse gas-containing pressurised metered dose inhalers (pMDI). By swapping to MART treatment, there is therefore the potential for reducing greenhouse gases by reducing overall inhaler use. Furthermore, swapping from pressurised metered dose inhalers to dry powder devices (only if the patient can use the inhaler effectively), may further reduce the environmental impact of asthma therapies.

SENTINEL Plus is based on the SENTINEL project, an ongoing quality improvement initiative started in Hull and East Yorkshire in 2020, supported by Hull University Teaching Hospitals NHS Trust and AstraZeneca UK. Pilot data from the SENTINEL project has demonstrated that implementation of a maintenance and reliever therapy (MART) focused asthma guideline can substantially reduce SABA prescribing.

The NHSE's East of England (EoE) Respiratory Clinical Network piloted SENTINEL Plus in collaboration with Bedford, Luton, Milton Keynes ICS, and Suffolk and North East Essex ICS, with support from AstraZeneca, NHS Humber, and North Yorkshire ICS – and their findings were:

- > most people are open to moving to a new MART inhaler and regime
- > most people are open to moving to a new MART inhaler and regime when recommended by their asthma healthcare professional
- > when patients are provided with more information prior to their asthma review, they are more likely to take up the offer of MART or change inhalers, because they have time to understand the new regime and how it can help them to manage their asthma.

After the first 12 months that SENTINEL Plus was piloted within the EoE:

- > 861 patients who were on six or more SABAs were transferred to MART
- > based upon the agreed calculation of **28 kg of CO₂** per SABA not prescribed, the project removed nearly **75,000 kg of CO₂** emissions from the environment (equivalent to 37.5 return flights from London to New York)
- > 151 healthcare professionals were educated about the importance of encouraging patients to swap to MART.



Case study 2

Sustainability of acute care in the north west

In 2019, NHSE's carbon footprint in acute care was estimated to be 125 kg CO₂e per bed day and 76 kg CO₂e per outpatient appointment, **making acute care the most carbon-intensive clinical activity**. Most of these emissions originate from the purchase of consumable goods and capital equipment, building energy consumption, food services and staff travel.

Staff at Whiston Hospital in the north-west of England are delivering several projects to reduce the environmental impact of their acute medical unit (AMU). This work is led by an Acute Medicine Digital, Innovation, and Sustainability (DIS) Group, which promotes ideas and spearheads change on the AMU with members from medicine, nursing, pharmacy, pathology and IT, as well as administrative and managerial staff.

They identified performance of coagulation tests as a potential area to reduce the AMU's carbon footprint, as well as operational costs. Initial scoping found that nearly half of the coagulation tests performed on the AMU were not necessary. Further quality improvement is being undertaken to collect detailed data on performing coagulation tests on AMU, aiming to align with NHSE's best practice guidance on phlebotomy in secondary care.

Concurrently, a point of care INR testing machine has been purchased to obtain results in a timely manner (eg pre-procedure) and reduce the number of coagulation tests sent to the lab. This in turn will save on the use of plastic bottles, blood order print outs and packaging, as well as physical and human resources in the laboratory and waiting times for both patients and clinical staff. This is currently in a trial stage.

To achieve the cultural shift required to push forward this work, the DIS group is engaging with other cohorts of staff on their sustainability agenda. Whiston Hospital has undertaken a 'sustainability on AMU' staff survey, to allow for a comprehensive exploration of the topic and to identify gaps in knowledge and interest in education and resources on sustainability.

This exercise also aims to listen to concerns, find ideas and hopefully to gain support for projects which, when scaled, need to be adopted by staff. The survey is available for both healthcare and non-healthcare staff and has helped to improve staff's interest in this topic and their willingness to be involved.

The hospital has received positive responses to their staff survey about sustainability on the AMU; many staff provided meaningful suggestions and the process has created a positive dialogue throughout the AMU, which the group feel has also improved morale.



Tool 4: Key resources to improve the sustainability of your practice

There are many resources that can help to improve your understanding of health and climate change in the UK. We have highlighted a few here.

Greener NHS Plan

In 2020, the NHS became the first health service in the world to commit to becoming net zero. This commitment was embedded in law in 2022 through the Health and Care Act, meaning that NHS England, trusts, foundation trusts and integrated care boards (ICBs) all have legal duties to contribute towards statutory emissions and environmental targets.

In the Greener NHS Plan, the NHS set two targets:

- > to reach net zero by 2040 for the emissions the NHS controls directly ('the NHS Carbon Footprint'), with an ambition to reach an 80% reduction by 2028 to 2032
- > to reach net zero by 2045 for the emissions the NHS can influence ('NHS Carbon Footprint Plus'), with an ambition to reach an 80% reduction by 2036 to 2039.

Taking a look at the [Greener NHS Plan](#) – which is now issued as statutory guidance – will help you to learn about the key areas that the NHS is focusing on to achieve these ambitions, eg by reducing the environmental impact of medicines.

Engage with the sustainability work happening in your local area

Trusts and integrated care boards (ICBs) will meet their new climate duties under the Health and Care Act 2022 by delivering their localised green plan. Each plan is approved by that organisation's board or governing body, and sets out its aims, objectives and delivery plans for carbon reduction. All ICBs have now published a consolidated, system-wide green plan – reading your ICB's green plan could help build your understanding of the efforts happening in your local area. Local NHS green plans are online – you can find yours by searching the name of your ICB and the term 'green plan'. Your organisation should have a sustainability lead or champion that you can engage with if you want to be involved in the work happening in your local area.



FutureNHS

NHS staff are invited to join the Greener NHS Knowledge Hub on the FutureNHS platform. This workspace connects you to information, tools and resources, and provides a space for you to share your knowledge, ideas and best practice. You can also see a wide range of case studies and join our discussion forum. You can access the hub [here](#).

Greener NHS dashboard

You can see how NHS organisations are performing against a range of indicators through the [Greener NHS dashboard](#). This includes key indicators on anaesthetics, inhalers and building energy use, and process indicators to support action on NHSE's current commitments.

Sustainability in Quality Improvement (SusQI)

Quality improvement is an integral part of your role as a health professional. With [finite environmental, social and financial resources available](#), improving the quality of healthcare will require us to optimise financial and

environmental resources, while adding positive social value at every opportunity. The [SusQI website](#), hosted by the Centre for Sustainable Healthcare (CSH), contains a range of resources and courses that help people to learn how to embed sustainability into quality improvement.

The CSH also has a [Networks Platform](#) to help people build a sustainable healthcare community, learn and collaborate with others, particularly within specific specialty areas.

Good Medical Practice standards

[Good Medical Practice](#) are the standards set by the General Medical Council on the care and behaviour expected of all doctors. The latest version, updated in 2024, states that medical professionals have a responsibility to consider the environmental impact of healthcare practice in the course of their work.

A [sustainability Q&A](#) has been developed alongside these standards to explain how they apply to you as a medical professional.



Conclusion

While physicians have a role to play in mitigating and adapting to the health effects of climate change, we need system-wide efforts to be prioritised in the NHS and beyond.

That is why the RCP [continues to call](#) on the government to adopt policies that will reduce the health effects of climate change as well as ensuring that the NHS and health and care systems can effectively prioritise environmental sustainability.

Get in touch

If you have any feedback or questions about the *Green physician toolkit*, please get in touch. We'd welcome hearing more about the barriers you face or have faced in implementing more sustainable clinical practice in your area of medicine.

We also want to hear about the good work happening in the physician community to reduce the environmental impact of healthcare within your specialty area. You can share examples of good sustainable practice by submitting a case study [here](#).

To get in touch, please email policy@rcp.ac.uk.

The *Green physician toolkit* was developed through the RCP sustainability in healthcare and climate change advisory group, which comprises the RCP academic vice president, special adviser and deputy special adviser on sustainability, external sustainability experts, and membership and Patient and Carer Network representatives. The document was approved by RCP Council.

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