The NHS and Climate Change

"The environment, which shapes our lives and our health, is under threat from climate change. By taking action to become a low carbon organisation, the NHS can help to combat the direct risks to health of climate change."

Rt Hon Dawn Primarolo MP
Minister for Public Health

Climate change threatens the health and well-being of current and future generations.
There is still a chance to minimise the extent and effects of global warming but swift action is vital.

As a good corporate citizen, the NHS can play a leading role in protecting and promoting the health of the communities it serves. By reducing carbon emissions and encouraging healthier lifestyles it can combat climate change, save money, and achieve health benefits on many levels by simultaneously tackling issues such as obesity and health inequalities.

This publication is the seventh in a series that explores the NHS contribution to sustainable development. It looks at why and how NHS organisations can take serious action against climate change, drawing from examples of NHS trusts which have demonstrated significant results through the NHS Carbon Management Programme from the Carbon Trust.

By giving higher priority to preventing illness and promoting sustainable development the NHS can safeguard its own capacity to look after the nation's health in future.

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CARBON TRUST

www.sd-commission.org.uk

Sustainable Development Commission

CLIMATE CHANGE

Climate change is already happening. Due to increased levels of greenhouse gases in the atmosphere, such as carbon dioxide (CO_2), our climate is changing irreversibly and global temperatures have risen.

The Facts:

- Between 1970 and 2004 global CO_2 emissions have grown by 80%.
- The top 10 warmest years recorded globally have all occurred during the last 12 years.
- The planet has warmed 0.74°C since the beginning of the 20th century, and this trend is set to continue with predicted rises of between 1.8°C and 4°C by 2100.

In Europe, as around the world, changes such as rising sea levels, retreating glaciers, longer growing seasons, and shifts in species ranges are already evident. We can expect a continuing increase in extreme weather events such as the 2003 heat waves and the 2007 summer floods, where the UK experienced the hottest temperatures and the wettest summer on record.

Damage has been done but the future is in our hands if we take serious action now. The Stern Review (2006) set out clearly that 'the costs of stabilising the climate are significant but manageable; delay would be dangerous and much more costly.'

CLIMATE CHANGE AND HEALTH

Climate change is recognised as one of the most significant challenges facing the world, and it will have serious implications for health and for the NHS. Health depends on a wide variety of determinants, and many of them (for example temperature, pollution levels, access to food and water, and stress levels) will be affected by climate change.

In the UK the positive effects of a warmer climate, such as a reduction in cold-related deaths, are likely to be outweighed by a series of negative impacts, such as:

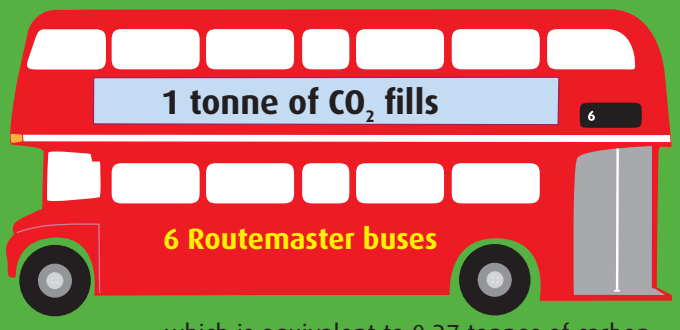
- an increase in heat-related deaths – predicted to reach 20,000 a year in the UK by 2050 due to more frequent and severe heatwaves
- increased cases of skin cancer and cataracts
- injuries and infectious diseases as a result of increased flooding – a Foresight report predicted that by 2080 over 3 million people in the UK could be at risk from flooding
- anxiety and depression linked to physical and economic insecurity
- respiratory disease, insect-borne disease, and food poisoning are also expected to increase.

On a global and national scale, the poorest countries and communities who are less able to adapt, will suffer the most severe consequences, exacerbating concerns about existing health inequalities.

'It is vital to appreciate the breadth of influence an NHS organisation can have: those leading the way in the NHS Carbon Management Programme have a carbon reduction strategy that not only targets their own direct emissions but also looks to engage with patients, neighbouring businesses and other local public sector organisations.'

Tom Cumberlege, Carbon Trust

How much is a tonne of CO_2?



which is equivalent to 0.27 tonnes of carbon

'The implications of climate change for the NHS are absolutely massive. They will demand a complete transformation of the way in which health services in this country are actually made available to people. Until every single body in the NHS gets their head around the reality of operating in a carbon constrained world progress will continue to be too slow.'

Jonathon Porritt
Chairman, Sustainable Development Commission

CLIMATE CHANGE AND THE NHS

Role of the NHS

There are opportunities for the NHS to combat climate change on many levels.

With a budget of £96 billion, and the largest property portfolio and workforce in Europe, the way the NHS operates can have a huge impact on carbon reduction, in turn saving money and increasing efficiency.

As a healthcare provider, the NHS has a vital part to play in safeguarding and promoting the health of the communities it serves – lower carbon operations and behaviour contribute to being good corporate citizens and affect the wider determinants of health. For example, by encouraging active travel for staff, visitors and patients, and through careful management of freight and waste, the NHS can simultaneously cut carbon emissions, minimise risks to health from air pollution and traffic injuries, and help reduce levels of obesity. A healthier population will be better equipped to adapt to changes ahead.

The NHS will have to respond to the health impacts of climate change and be fully prepared for the additional burden.

Carbon Footprint

The burning of fossil fuels for energy use in NHS buildings and vehicles produces a direct carbon footprint of about 3.7 million tonnes of direct carbon dioxide emissions a year, and in 2006/7 the total energy used cost £427 million.

The total carbon footprint also includes indirect emissions which are embedded in the products and services used – i.e. from visitor, patient and staff travel, procurement and waste. This is more difficult to measure but is expected to be two or three times higher than direct emissions.

The Climate Change Bill will commit the government to reducing the UK's carbon emissions by at least 60% by 2050, making the UK the first country in the world to put reducing carbon emissions into law. The NHS currently has a target of a 15% reduction in primary energy consumption between 2000 and 2010, as well as targets to improve energy efficiency.

Currently the NHS is not on track to meet these targets; despite some improvement in energy efficiency, total energy consumption increased in the NHS by 7.0% between 1999/00 and 2004/5.

Corporately the NHS is dedicated to becoming an exemplar for public sector action on climate change and sustainability. A dedicated Sustainable Development Unit is currently being set up which will lead on a carbon reduction strategy for the NHS, in addition to wider sustainable development issues such as the role of the NHS as a good corporate citizen.

ACTION

It is now too late to avert some degree of climate change, and the NHS will have to play a part in helping the population adapt to changes ahead. The NHS will need to be prepared for an increased demand for treatment of health problems arising from climate change. The role of the NHS in improving public health will also become increasingly important in building up resilience to the health implications of a changing climate. At the same time, the NHS has the opportunity and the ability to help mitigate the worst effects of climate change, by reducing both its direct and its indirect carbon footprint.

Strategy

The best way for an NHS organisation to achieve significant and long-term carbon savings is by developing a holistic carbon reduction strategy, whereby its carbon footprint is calculated, opportunities are assessed and a structured action plan is developed.

Areas to consider include:

• **New buildings and refurbishments.** The NHS Environmental Assessment Tool (NEAT) assesses the impacts of healthcare buildings on the environment. Two variations of this tool are available, one of which can be applied to the existing estate, and the other to new buildings and refurbishments. Within the NHS each new building must achieve an 'excellent' rating and each refurbishment a 'very good' rating.

Better building design could not only cut energy costs by a quarter, but could also increase the productivity of the NHS's workforce by 6-16%.

• **Procurement.** The right procurement choices can reduce harmful environmental impacts – by producing less waste, minimising the need to transport goods, reducing carbon emissions and other pollution. Local sourcing of food and supplies can bring both environmental and health benefits.

From May 2008, the NHS will be required to purchase energy using equipment and vehicles

'The NHS has the potential to touch almost every person in this country. By demonstrating how to reduce carbon emissions and promoting healthy, sustainable lifestyles, the NHS can lead the way to a healthier, happier society.'

Neil McKay
Chief Executive, NHS East of England

which are above a specified efficiency standard as set out by the Energy Services Directive.

• **Transport.** Green travel plans can promote healthy methods of transport and help to change travel patterns of patients, staff and visitors; encouraging active travel (such as walking, cycling or taking public transport) in place of using a car can reduce the carbon footprint of the organisation and deliver multiple public health benefits.

• **Waste.** An effective waste strategy can be an important contributor to carbon reductions. If a recycling target of 40 to 60% were to be achieved by the NHS, the emissions savings delivered are estimated to be between 16,500 and 23,000 tonnes of CO_2 per year.

Although individual champions can be impressive, only with consistent **board-level commitment** can optimal results be achieved. It is important to ensure that at least one board member makes it their business to ensure that climate change is taken seriously across the organisation.

Capital improvements

Investing in sustainable capital improvements can pay dividends in terms of financial and carbon savings.

• **Combined Heat and Power (CHP)** is the on-site generation of electricity, utilising the heat that is a by-product of the generation process. In an appropriate application, CHP can reduce energy bills by up to 20-30% and reduce carbon emissions.

The two gas-fired CHP plants installed in 1991 and 1994 at **Glenfield Hospital** have helped to reduce electricity consumption by 21.5%. Financial savings of £20,000 a year are also made through exemption from the Climate Change Levy.

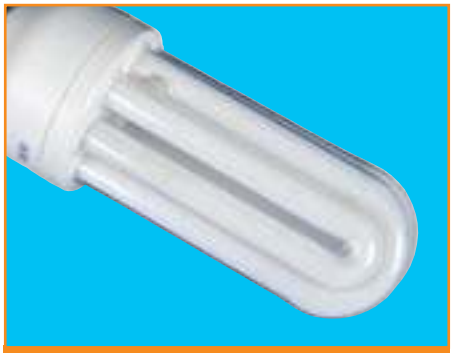
• **Harnessing renewable energy sources** such as wind and solar power can be a sound investment to reduce carbon and make long term savings.

• Around a quarter of a building's heat can escape via an uninsulated roof – **insulating** any roof spaces and unfilled external cavity walls is a cost-effective way of reducing heat losses.

Small-scale measures

There are many opportunities to achieve energy and cost savings by implementing a few simple and fundamental improvements. The biggest savings can be made through adjustments to heating, hot water, lighting, ventilation and the effective use of electrical equipment.

• **Lighting** can account for over 20% of the total energy use in a typical hospital so energy-sensitive lighting and motion-sensitive controls can make a huge difference.



Rosie Hospital in Cambridge University Hospitals NHS Foundation Trust saved £7,000 and 176 tonnes of CO_2 by upgrading 334 lights to energy efficient bulbs and running an energy awareness programme focussing on switching off lights.

• Maintaining and insulating **boilers and pipework** is an effective measure – a regularly serviced boiler can save as much as 10% on annual heating costs.

• Understanding where energy is being used and wasted and implementing a formal **energy policy** accordingly can make savings of up to 20%, for very little investment.

Changing personal behaviour

Staff need to be on board to help you deliver carbon savings. Management decisions can provide the incentives needed to persuade people to choose low carbon options.

• Reviewing the allowance given for **fuel miles** and considering a more generous allowance for **cycling miles** can help to change travel patterns, as can provision of **changing and showering facilities**.

• Introducing a **car sharing scheme** can be a good low cost option to encourage change.

Essex Rivers Healthcare Trust are partners in the Colchester 2020 Travel Plan Club, a local partnership which supports national events such as 'Cycle Week' and facilitates car sharing schemes.

• Raising staff awareness of issues, and methods of reducing energy use can deliver great results. Once staff are engaged they can be the eyes and ears of an organisation, identifying and implementing energy saving suggestions.

For further information and resources on the above, see the Carbon Trust NHS Carbon Management and the Good Corporate Citizenship websites.

Tricky issues

Green tariffs: Current government advice is that it is not possible for organisations to claim a zero carbon credit from the purchase of 'green electricity' because this saving is already included in the government target to encourage more renewable electricity. However, organisations are encouraged to source green electricity where it can be provided at no additional cost. There are also many options available for on-site generation of renewables.

Carbon offsetting as a quick fix is not encouraged – NHS organisations can instead focus on delivering maximum in-house carbon savings as part of a carbon reduction strategy.

Hull and East Yorkshire Hospitals NHS Trust

Carbon footprint: 26,500 tonnes CO_2

£3.7 million spent annually on energy (2005-6).

Through the Carbon Trust Management Programme, 23 strategic carbon management opportunities have been identified including:

- roof and pipe insulation
- improving heating controls with Building Energy Management Systems
- installing automatic lighting controls
- replacing calorifiers with plate heat exchangers, which provide heating and hot water more efficiently.

Goal: to reduce the 2005/6 base CO_2 emissions by 15% over a five year period for energy and transport – 4,000 tonnes CO_2 per annum.

BUSINESS CASE

It's not only a matter of doing what's best for the planet; there are strong business benefits to tackling climate change.

Financial savings
Increasing energy efficiency and reducing overall energy consumption can have significant and long term financial benefits. The 10 pilot participants of the Carbon Trust's NHS Carbon Management Programme identified measures to save approximately £8 million a year in energy costs.

Complying with legislation
The Climate Change Bill will set challenging carbon reduction targets, and the NHS will need to play a part in delivering these. The earlier a carbon reduction strategy is implemented the easier it will be to meet these targets.

Enhancing profile
There is increasing demand from the public for organisations to be socially and environmentally responsible. Taking action against climate change helps to set a leading example and raise public profile.

Improving population health
This can be achieved on different levels:

- Helping to mitigate the negative health consequences of climate change (e.g. from extreme weather events)
- Reducing the direct negative health impacts of carbon-intensive lifestyles (e.g. from air pollution)
- Reducing the *in*direct negative health impacts of carbon-intensive lifestyles (e.g. inactivity resulting from high levels of car use rather than cycling or walking)

Good governance, risk management
With volatile energy costs, decreasing dependency will reduce the vulnerability of the NHS to future price rises.

By acting as a good corporate citizen the NHS can improve both efficiency and public health while making a contribution to reducing carbon dioxide emissions. The **NHS Good Corporate Citizenship Assessment Model** has been developed by the Sustainable Development Commission and Department of Health to help NHS organisations assess their own progress towards becoming good corporate citizens and aid population health, social cohesion, strong local economies and a healthy environment. See **www.corporatecitizen.nhs.uk** for more details.

Wrighton, Wigan and Leigh NHS Trust

Carbon footprint: 17,000 tonnes CO_2

£1 million spent annually on energy (2004-5)

Through the Carbon Trust Management Programme 17 individual projects to reduce carbon are to be implemented, including:

- the appointment of a Trust Energy Manager
- running a staff awareness campaign
- introducing CHP at one site
- a lighting upgrade programme.

Goal: the trust expect to save in the region of £380,000 on its energy bill over five years, and reduce CO_2 emissions by 4,000 tonnes over the same period.


CHP generator

Sources of support

NHS Carbon Management Scheme from the Carbon Trust provides technical and change management support to help NHS trusts realise carbon emissions savings. The aim is to reduce emissions under the direct control of trusts – whether caused by energy use in buildings, lighting or vehicle fleets.
In the pilot six months of the programme, the 10 healthcare organisations identified measures saving 60,000 tonnes of CO_2 a year – with associated cost savings of around £8 million. A further 16 organisations joined phase two of the programme and are set to cut their annual carbon footprint by an average of 15%, identifying potential savings of 64,000 tonnes of CO_2 emissions.

Salix Finance provides interest free government funding to the public sector to invest in energy efficiency. Following a successful NHS pilot scheme, Salix are now rolling out a full programme for NHS Foundation Trusts.

The **Low Carbon Buildings Programme** provides grants for the installation of microgeneration technologies.

NHS Energy and Sustainability Capital Fund
The £100m funding, made available in January 2007 to help NHS improve energy and carbon efficiency, was well received and has now been fully allocated, with projects making a predicted saving of £16 million per annum. As the NHS continues to target carbon emissions there may be further incentives and policies to encourage NHS trusts to reduce their environmental impacts.

See resources section for more details.

"It just makes good sense on every level – as well as contributing to the fight against climate change, and hopefully inspiring others to do likewise, we're making considerable financial savings which will allow the Trust to invest further in health improvement. Best of all, it gives a strong platform for us to develop our services in partnership with our local community.

Andrew Foster
Chief Executive, Wrighton, Wigan and Leigh NHS Trust

RESOURCES

The **NHS Good Corporate Citizenship Assessment Model** helps NHS organisations identify, assess and improve their contribution to good corporate citizenship.
www.corporatecitizen.nhs.uk

The **Carbon Trust** helps organisations of all sizes to cut their energy bills and carbon emissions with practical advice, free publications, and on-site surveys.
The **NHS Carbon Management Programme** provides technical and change management support to help NHS trusts realise carbon emissions savings. Interested trusts should contact tom.cumberlege@carbontrust.co.uk
www.carbontrust.co.uk/carbon/publicsector/nhs

Taking the temperature: Towards an NHS response to global warming: A report by the new economics foundation for the NHS Confederation.
www.nhsconfed.org/membersarea/downloads/download.asp?ref=2468&hash=4b7e5dfa536fa641f28b8af3c1e31483

The **Health Effects of Climate Change in the UK** reports on the likely impact of climate change on health, and implications for the NHS.
www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_080702

The **Carbon Trust's Hospitals Sector Overview** helps managers to assess the potential for energy savings and indicate key areas for improvement, raise awareness and motivate action across the whole site and, prioritise activities to maximise savings.
www.carbontrust.co.uk/publications/publicationdetail?productid=CTV024

EnCO$_2$de – making energy work in healthcare. Comprehensive guide from the Carbon Trust to all issues relating to the procurement and management of energy in the NHS.
www.carbontrust.co.uk/Publications/publicationdetail.htm?productid=CTC605&metaNoCache=1

NHS Environmental Assessment Tool (NEAT) – self-assessment software to estimate the environmental impacts of the current existing NHS estate and new build/refurbishment schemes. (Contact helpdesk on 0113 254 7010 for a password). This will become BREEAM for Healthcare and its site location will change in summer 2008.
www.efm.ic.nhs.uk

The **Environment Agency Carbon Calculator** calculates the embodied carbon dioxide (CO_2) of materials plus CO_2 associated with their transportation, and also considers personal travel, site energy use and waste management.
www.environment-agency.gov.uk/business/444304/502508/1506471/1506565/1508048/1883907/?lang=_e

Act on CO_2 Carbon Calculator works out your carbon footprint and shows how you can make some simple changes to help tackle climate change.
http://actonco2.direct.gov.uk/carboncalc/html/index.aspx

Salix provide free government funding to the public sector to invest in energy efficiency. Interested NHS Foundation Trusts should contact Richard.sansom@salixfinance.co.uk or visit **www.salixfinance.co.uk**

The **Low Carbon Buildings Programme** provides grants for installing microgeneration technologies.
www.lowcarbonbuildings.org.uk

The **UK Climate Impacts Programme** assesses the likely environmental and economic effects of climate change in the UK.
www.ukcip.org.uk

The **Energy Services Directive** requires the public sector to play an exemplary role in the context of energy efficiency
http://defraweb/environment/climatechange/uk/energy/energyservices

Sustaining a Healthy Future: A guide for the health sector from the Faculty of Public Health on the importance of tackling climate change.
www.fph.org.uk/resources/sustainable_development/sustaining_a_healthy_future.asp

The **Climate and Health Council** aims to mobilise health professionals across the world to take action to limit climate change.
www.climateandhealth.org

The **NHS Estates Knowledge & Information Portal** is an extensive source of guidance materials and case studies to support sustainable and efficient estates management in the healthcare environment.
http://195.92.246.148/nhsestates/knowledge/knowledge_content/home/home.asp

The Sustainable Development Commission's *Healthy Futures* programme, funded by the Department of Health, helps the NHS to maximise its contribution to the health of individuals, communities and the environment. For more information visit www.sd-commission.org.uk/health. If you are involved in sustainable development in the NHS, or want to be, please email **maria.arnold@sd-commission.gsi.gov.uk.**

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