



**SUSTAINABILITY**  
PARTNERSHIPS

**THE 2021**  
**SUSTAINABILITY**  
**IMPACT REPORT**

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## Welcome to the 2021 Sustainability Impact Report from Sustainability Partnerships.

After a challenging year for a multitude of sectors, we are looking to focus on some of the positives in the drive for greater sustainability in the NHS. This year's Sustainability Impact Report will draw on insight gained from events we have undertaken throughout the year. Throughout these pages you will find information on a range of subject areas covering the developments being made within our public health service to create a more sustainable future. We have turned to a range of NHS Trusts, CCGs, hospitals as well as industry experts to find out what has happened throughout 2021.

We are seeing some amazing progress within the public health sector towards a greener future and have heard of some fantastic, innovative new products and services from industry professionals and businesses that are opening new doors for the sector.

Within the 2021 report we have some remarkable insight on the role of sustainability within the NHS. Delving into sustainable technology, greener transportation, sustainable nutrition, renewable power, the reduction of the use of plastics, as well as our predictions for what's to come in the next year. All of which will be drawing on information and plans released from COP26 this year. But as always, we know that there is much more to be done. We hope that you find this report a valuable asset as we continue to work to introduce greener practices to the NHS.

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# THE ROLE OF SUSTAINABILITY IN THE NHS

Our events across the year have provided us with a huge amount of base insight into the role Sustainability has had in the NHS over the past year. Understanding the role of sustainability within your organisation is important whether this is logical, emotional or moral and in the NHS, sustainability spreads across all these areas and sustainability is currently playing a vital role within the NHS. Although the primary goal of our NHS is to protect people's health, it has been evident in the last five years that the NHS has a significant environmental effect. The healthcare system in the United Kingdom is estimated to account for [5%](#) of the country's carbon footprint. It is important to recognise that the climate crisis is also a health crisis. And worsening weather conditions and pollution created greater health risks.

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18 million people are affected in the UK health-wise, through asthma and other conditions, heart disease and things which are caused by poor air quality.

The environmental movement is becoming huge within the NHS which can be seen with the introduction of green plans this year boosted by a £26.9 million decarbonisation grant and the NHS being the world's first national health system to commit to carbon net-zero. We are facing environmental catastrophes, and there are amazing organisations within the healthcare system who are dedicated to tackling this. When looking at increasing sustainability within an organisation it is important to be aware of each area it can be applied and use this to your advantage. The main benefits of being a sustainable organisation is to create long term value through reducing operating costs, creating more effective resource managers, having effective economic social and environmental risk management and building loyalty, education and dedication within staff through dialogue and engagement.

We have heard a lot about the importance of inclusion of NHS colleagues in the planning surrounding building a greener NHS, and we have also been informed of many organisations doing just that. Sandwell and West Birmingham Trust have developed sustainability as a main pillar to be engrained within many departments of the Trust and have put their staff engagement and learning at the centre of that.

“ ”

The important thing is, as we are working within this organisation is that we listen to our colleagues, we understand what drives them, what motivates them, and we tailor our message to them.



## Sandwell and West Birmingham NHS Trust

Sustainability is engrained within many departments at the Sandwell and West Birmingham NHS Trust, including travel and transport, waste, health and wellbeing, procurement, corporate, clinicians. Developing clear sustainability policies and strategies alongside engaging, supporting and motivating others to be part of our journey has been critical to driving positive impacts for the trust.

Their major programme 'Green Impact' is set to engage colleagues and has been running for three years. Green Impact is a formal and measurable framework that allows colleagues to work in their teams through set actions in an online platform. The actions are externally audited, and teams provided with an accreditation level based on the effort and actions achieved.

Each year the trust holds an awards presentation and lunch to celebrate all the environmental and costs savings achieved. The ethos is small actions taken by many will

collectively make a big impact. There are 30 teams on board, completing 250+ actions every 6-8 months. 20 teams achieved the 'good intentions award', with three silver awards for teams completing bronze and over 19 silver actions. Through Green Impact, the trust save an estimated 37,046kg of carbon and £12,240 each year.

The trust work closely with the CCG and clinicians on sustainability related work, including their project exploring reducing environmental impact of inhalers. The learnings from this project could be shared and scaled up across other CCG and NHS Trusts to benefit the NHS on a greater scale.

Each year the trust run a Sustainability Garden Party. It is open to patients and the public to engage people in the importance of being environmentally sustainable and active. They also put in place a 'Grounds and Gardens Plan' focused on staff and patient wellbeing. This plan protects green space on the sites to encourage physical activity (e.g. via plans for outdoor gyms), relaxation and biodiversity. The Community Greenhouse Project focuses on pulling together the local community

and relies on volunteers and staff to run. The staff and community have been instrumental in driving the project and making it a success.

The University College London Hospitals NHS Foundation Trust have also had great involvement from their staff members, with encouragement for them to also engage patients. Sustainability is being injected into this trust in a way which workers can enjoy, avoiding the sustainability agenda becoming a chore.

## University College London Hospitals NHS Foundations Trust

On the 19th August, UCLH declared a climate and health emergency. This was the subject of a short film that highlighted the trust's ambitious aim of achieving net zero carbon emissions by 2031, which has received over 1,000 views to date.

Their aim was to engage the public and staff with powerful information about both the problem and the leadership role the NHS can play in driving change. It also set out

concrete steps others could take to follow our lead. The trust produced a press release highlighting UCLH's ten-point plan to achieve net zero emissions, which received positive coverage in The Independent. The Health Service Journal published a comment piece by UCLH's acting chief executive, outlining ten ways in which NHS organisations can act on climate change: the film was also featured on the influential nhsmanagers.net.

The majority of UCLH's website visitors are based in the local community. UCLH's ten-point plan for carbon reduction was published on the UCLH website and has received over 900 views to date. They also have received many approaches from other trusts keen to learn from their communications approach and wanting to implement the actions they have taken.

On the day of the declaration, UCLH handed out reusable 'Climate Stripes' masks for staff to wear, to prompt conversations with patients on climate issues in health. The declaration has also triggered a step change in staff engagement. The number of sustainability champions at UCLH has increased by 283 per cent. Their networks and Green Schemes aim to provide staff with opportunities to make a difference to climate change: this knowledge can then be spread throughout local communities.

## Health Education England and North East

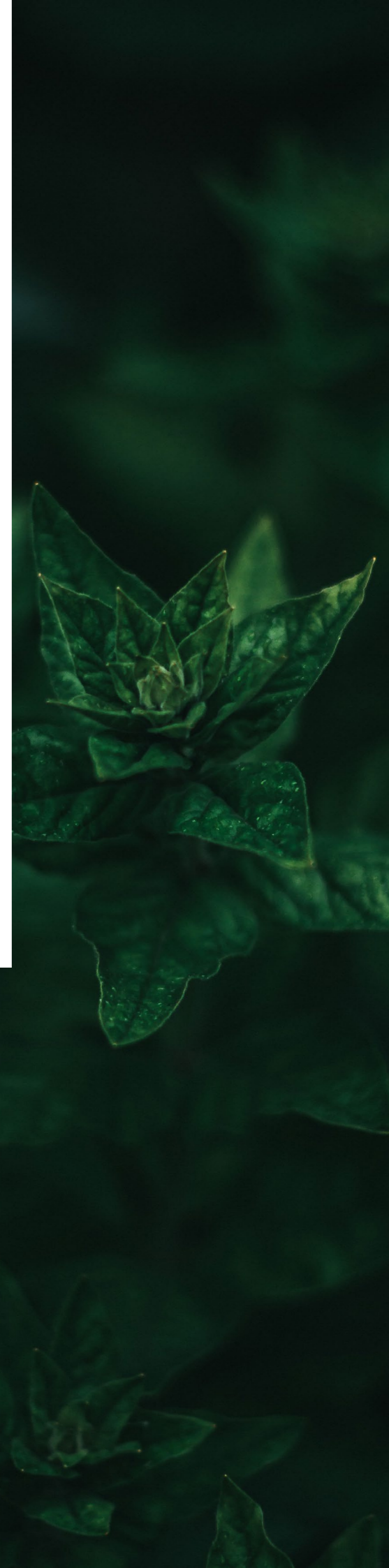
Health Education England North East has established the faculty of sustainable healthcare over the last 12 months. The faculty has launched a programme of work that includes workshops, online modules and

clinical rotations. These educational resources have been promoted to all doctors and dentists in training in the North East and their supervisors.

By establishing the faculty the North East aims to develop a network of Green Champions within different healthcare organisations to empower them to change culture and develop Sus QI projects in their own area of work.

The faculty is unique in that it reaches out beyond primary and secondary care, to public health professionals, dentists and pharmacists who all come under the NHS umbrella. This has been paramount in getting sustainability into the mindset of their clinicians of the future as well as those currently practicing ensuring sustainability is second nature when making clinical decisions.

The faculty is the first to be set up in the UK. Its aim is to provide sustainability and net zero training to the 4,000 trainees it currently has responsibility for as well as those supervising them. The aim is to make the North East the greenest region of England.





I think the only way to make this impact is if all of us play our part.

- Abdullah Albeyatti, CEO and Co-Founder at Medicalchain and MyClinic.com



# SUSTAINABLE TECHNOLOGY IN THE NHS

Businesses in every industry are having to take a more systemic view of their activities to build a greener future. And that is no different for the NHS. Cutting-edge technology is at the heart of transformation and is engrained in the entire procurement process, from green manufacturing methods and materials used to smart energy usage and production and logistics. Digital systems are often seen as the more sustainable option due to the ability to be paperless, but they have a surprisingly large carbon footprint.



With digital technologies being responsible for 4% of greenhouse gas emissions (GHG), and its energy consumption increasing by 9% a year, it's important that the NHS focus on utilising suitable technologies.



Digital systems have a similar carbon footprint to Aviation.  
- Ben Tongue, NHS Digital

## Green Tech

During one of our webinars this year we heard from Ben Tongue, Sustainability Lead at NHS Digital who explained their recent developments with the NHS to develop a digital workstream. The movement towards digital workstreams are highly beneficial to the NHS as it aids the organisation to factor sensible decision-making choices for digital health solutions such as hosting choices, architectural choices and on-demand services, whilst also looking at simpler reductions such as removing unnecessary data. It helps to focus in on choices of imagery and video resolution as this consumes a large amount of data.

The NHS has developed from in-house servers in 2015, to co-location data centres in 2017 all the way to utilisation of cloud data servers in 2020. Which has hugely reduced the amount of energy consumed to run its data centres.

Digitalisation has a large part to play in promoting a more sustainable future for the NHS due to the reduction in paper usage. Patients are increasingly able to access their medical documentation online through services being developed meaning letters are not required. Digitalisation also reduces the transport impact of the NHS. Of the NHS's two gigatons of carbon dioxide contribution, 7% of this is due to transport. But the digitalisation of health care appointments that enable video calls with patients where appropriate, drastically reduces this.

## Wearable Medical Technologies

Well linked with the digitalisation of patient appointments is the potential

introduction of wearable medical technology devices. With the disruption to general healthcare services brought by COVID-19 in the past two years, experts have been left to consider how access to vital services can be provided in challenging circumstances. An emerging trend has been the introduction of wearable medical technology.

This technology is something already being worn by a large proportion of the population with it being estimated that 82% of recreational athletes own and use a wearable fitness tracker.



But wearable MedTech innovations that can be applied within the NHS come in a multitude of forms, including at-home cardiac monitors and wearable devices to track vitals. The applications of the devices are just as expansive as the range within them, such as the ideal solution for maternity monitoring or a device to monitor vitals on those who have previously experienced heart failure or cardiometabolic disorders. Although these innovative products are still within the early stages of implementation, we predict that they will deliver significant improvement to patient care, time efficiency, hospital bed management and reduced pressure on the ambulance services. All this, as well as, reducing the carbon footprint of our healthcare system with reduced need for travel.

We have spoken with a multitude of NHS Trusts who have successfully begun working with sustainable technology over the past year. From utilisation of asset tracking programs to digitalisation of systems, we have seen some great advancement. One company whose product has produced some amazing feedback from NHS professionals is Stryker.

# stryker

**Stryker is a market-leading medical device and technology company. Through their offerings of world-leading, innovative products and services in Orthopaedics, Medical and Surgical, and Neurotechnology the company is working on making our healthcare systems better.**



One of their most distinguished products is the Neptune 3. The Neptune 3 Waste Management System, is a constantly closed waste management system which is designed to collect, transport, and dispose of clinical fluid waste from the operating room direct to the hospital sewage system. The product has proven exceptionally popular with our NHS surgeons and nurses due to its safety improvements.

In most operating rooms today, fluid surgical waste is typically collected in disposable plastic suction canisters. A standard process for disposing of surgical fluid waste commonly involves manually opening the canisters, emptying contents into a drain or adding chemical solidifiers, depositing it into waste bags, and transporting it to landfill or incineration. All of these touch points pose potential exposure risks including:

- **Splashing onto face, eyes or skin**
- **Fluid spills on the floor**
- **Exposure while adding isolysers or transporting**

By sealing off suctioned biohazards, from initial collection, through disposal and internal self-cleaning, the Neptune 3 Waste Management System can convert these physical interactions. A study estimated that up to 40% of surgical fluid waste is related to suction canister disposal.<sup>3</sup> But reports of how the Neptune 3 has improved many hospitals sustainability standards has shone a spotlight on the product.

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“Neptune has a huge part to play in reducing the amount of fluid waste and plastics incinerated. Our previous system results in 16 bins a day that must be transported off site for incineration. With the Neptune system, this is reduced to 4 small plastic filters per list, which can be recycled.”<sup>1</sup>

– Theatre Manager

“ ”

“Stryker Neptune suction system. Although this required initial investment, when lower waste charges and transport costs are factored in, it becomes cost neutral, and saves carbon in both road miles and less plastic incineration.”<sup>1</sup>

– Consultant Anaesthetist

“ ”

“In carbon impact terms it is estimated that the system will save 36,000 litres of waste each year – equivalent to stopping over 31 tonnes of carbon being released.”<sup>2</sup>

– Procurement Contracts Manager & Waste Management Specialist

1. Barker, K., & Robinson, H. "Green Theatre Project". SEA-G Newsletter, Scottish Environmental Anaesthesia Group, UK. (2021).

2. James Paget University Hospital. "New equipment continues environmental work". NHS Foundation Trust, UK. (2021).

3. Practice Greenhealth (2011) Fluid Management Systems in the OR. pp 1-5

The opinions expressed herein are the opinions of HCPs and not necessarily those of Stryker. Individual experiences may vary. A healthcare professional must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that healthcare professionals be appropriately trained in the use of any particular product before use. The information presented is intended to demonstrate the breadth of Stryker product offerings. A healthcare professional must always refer to the package insert, product label and/or Instructions for Use before using any Stryker product. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Stryker representative if you have questions about the availability of Stryker products in your area. Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or service marks: Stryker, Neptune. All other trademarks are trademarks of their respective owners or holders.

# stryker

To find out more about the Neptune 3, visit Stryker's [website](#).



Another great example of integrating technology to improve sustainability is North Central London GP Surgery, who have developed their own integrated IT solution which has not only reduced their paper usage and waste but has also encouraged a higher uptake of smear testing in women.

## North Central London GP Surgery CCG

NCL Surgery created a digital IT solution where they could bulk send patients a personalised e-calendar invite and an email that would include clear information about their smear appointment, the procedure along with videos. They also included links and attachments of translated information that was relevant to the patient's preferred language.

The project helped increase the number of smears undertaken from 3,994 in October 2019 to 4,469 in October 2020. This shows an overall smear achievement of 71% (from 63%), an increase of 8% following intervention. Further data analysis showed an increase in smears in younger women aged between 25-34 (208 more - up by 31%) as well as showing a greater number of non-English speaking patients also undertaking the smear test (93 more - up by 13%).

They reported that patients have felt extremely positive towards the invites. They have fed back that the calendar invite persists on their phone, offering an alarm reminder to book an appointment with the nurse when they are due.

*"This is such a simple idea but really helps us as it is added to our calendar and then a reminder appears informing us to call the surgery."*

*"The reminder is helpful as when I get a letter, I normally put it to the side to book an appointment then forget about it. With the calendar, all the surgery's details are present, and I can easily ring them to book a smear test."*

NCL Surgery's reception staff have also found benefit with the new procedure. They have continued to use the system as part of normal practice and have installed it in a local surgery in PCN (HPS) with good effect. *"We noticed that in those patients who received the email and the calendar invite, when we call them, they ask less questions and are more likely to book than those who did not get the email. It has helped save us time having to explain the reason for the smear".*

Another stellar example of NHS Trust advancement is The Imperial College Healthcare NHS Trusts implementation of the AquaFund scheme, designed to deliver financial savings through measurement of water asset usage.

## Imperial College Healthcare NHS Trust

The Imperial College Healthcare NHS Trust has begun using the AquaFund scheme to aid them in their sustainability. The AquaFund is an innovative scheme procured by the Trust which delivered financial savings by analysing water supply costs. It provided an investment budget that was used to deliver volumetric and financial savings of 17% year on year on water, without incurring debt repayment obligations to the Trust. It has provided technical, environmental, and financial evaluations of the estate by auditing historic billing data from our water supplier, querying public data sources and undertaking physical site surveys of all water using

assets, meters, and processes to build a complete water balance of the estate to identify opportunities for improvements.

From identified opportunities, water efficiency equipment was recommended for installation, such as automatic meter reading systems, grey water recycling and boreholes. Once approved the scheme project manages and implements the technology to reduce the physical volume of consumption and provide ongoing access to 15-minute meter reading data.

A dedicated engineering team was allocated to sit behind the survey and meter reading data, analysing trends and performance against best practice and complex consumption benchmarks. This was to identify further opportunities for consumption reduction and to provide cost avoidance savings through highlighting maintenance issues and underground leaks. Visibility was provided to all Trust Stakeholders through an online portal, to enable collaborative working to ensure leak issues were resolved and cost avoidance savings maximised.

Monthly progress reports were issued to key stakeholders outlining our consumption savings in m<sup>3</sup>, our financial savings and the carbon savings for every m<sup>3</sup> of water and sewerage saved. Every year the scheme donates 1% of what we save to WaterAid, which is used to deliver fresh water and sanitation in developing countries contributing to our corporate social responsibilities.





The NHS are responsible for an estimated 10 billion road journeys each year, which equates to 3.5`5 of all UK road travel due to patients, visitors, staff and suppliers.

This is a number which desperately needs to be reduced, especially when considering that health damage associated with emissions from cars and vans is currently costing the NHS and society £6 billion every year. Current commitments are to cut mileage and air pollution from ambulances, patient transport and staff by a fifth by 2024.

### The NHS's Transport Emissions

Over the year, Sustainability Partnerships has spoken to a multitude of Trusts on what is contributing most to their carbon emissions. And for many, transport was high on the list. For example, at The Manchester University Foundation Trust, transport accounts for 8% of their current emissions. This is a concerning level when it is considered that Manchester has the highest rate of emergency asthma admissions within the UK. MFT's travel footprint is made up of approximately 45% patient and visitor travel and 50% made up from staff commuting. These are tricky areas to reduce emissions in as they are broadly out of the control of Trusts. There are little to no rules and regulations that can be put in place

to control this and therefore education and gentle encouragement towards the use of greener travel sources is all that can be done. And this is why staff education and engagement are so important.



I know that travel can also be a very emotive topic and it's an area which can be quite challenging to make some behavioural changes. But once that behaviour change and that behaviour shift takes place, the benefits are massive.

- Victoria Barlow,  
Senior Sustainability Officer at the Manchester University Foundation Trust

Every facility is different. A multitude of factors such as location and number of staff within the estate can have a drastic impact on the emission levels of specific Trusts and hospitals. Another element that plays a big role in cutting transportation fuelled emissions is people's personal abilities and the affordability. Which is one of the main reasons why transport must be at the top of the agenda within the next year of the NHS's sustainability strategy as the more support given to staff, the more people will look to change.



Anything we do to encourage the appropriate use of these forms amongst commuting staff, patients and visitors will greatly impact the NHS carbon footprint.

- Daniel Harborne, CTO,  
Route Konnect



# GREENER TRANSPORT





## Building New Habits

One of the largest movements towards the reduction of carbon emissions from travel over the past year has ironically largely come as a result of the pandemic. A new acceptance of online working has meant that many hospitals and Trusts have been able to reduce travel through moving previously in-person meetings online.

The Manchester Foundation Trust has managed to see a reduction of 40% in business mileage due to this development.

This is a real testament to how small adaptations can make a huge

difference within our healthcare system.

Options for staff and visitors to NHS Trusts which would reduce carbon footprint would largely be the choice to utilise greener transport systems. These would include:

### Public Transport

A single person who switches from a 20-mile commuting alone by car to existing public transportation, can reduce their annual CO2 emissions by 20 pounds per day, or more than 48,000 pounds in a year. That is equal to 10% reduction in all greenhouse gases produced by a typical two-adult, two-car household.

### Walking/Cycling

Walking or cycling to work is the greatest reduction in carbon emissions you can make, as none are produced!

### Electric Vehicles

Hybrid electric vehicles and all-electric vehicles typically produce lower tailpipe emissions than conventional vehicles do. The emissions from these vehicles comes from the production of the electricity used to power them. But, electric cars in Europe emit, on average, almost three times less CO2 than equivalent petrol or diesel cars. That's according to a new online tool developed by T&E that allows the public to compare the lifecycle emissions of an EV to fossil-fuelled vehicles.

The encouragement of these activities is already underway within the NHS but there is a huge amount of work to be done within this area. The introduction of EVs into ambulance fleets and solid cycle to work schemes are what is to be seen within the near future, and this will begin to have a huge effect.

Oxford University Hospital NHS Foundation Trust's development of a greener system to transport medication across the Trust's reach has been a great success story for this year.

## Oxford University Hospital NHS Foundation Trust

The Oxford University Hospital Cancer Pharmacy team led a project with Baxter Healthcare to use a local company, Pedal & Post, to deliver medication directly to wards, day treatment areas, and pharmacies at the John Radcliffe and Churchill hospitals in Oxford by bicycle. Previously, one van carried out several runs between the hospital sites.

Now, three cyclists make five or six runs daily, directly to the hospital departments, delivering more than 25,000 products in the first six months, following the first delivery that was made at the start of August 2020. By introducing this service, the time it takes for products to leave Baxter's compounding facility on the outskirts of Oxford, to arriving at the hospital site has halved from: 30 minutes to 15 minutes for the John Radcliffe Hospital and 20 minutes to 10 minutes for the Churchill Hospital.

Having a more effective and time efficient delivery system in place helps to support our staff and deliver the best care possible to our patients. The improvements deliver an estimated saving of up to 10 tonnes of carbon emissions (CO2 for example) per year, as well as improving air quality by eliminating the tiny particles of pollution produced from diesel engines, which benefits public health

as well as the environment.

It is expected that project will be extended to deliver goods to other sites including the Horton General Hospital in Banbury in the future by e-motorbike.

Bradford District Care NHS Foundation and Newcastle Upon Tyne NHS Foundation Trust are both great examples of how a greener transport initiative can also be brought about through vetting of supply chains.

## Bradford District Care NHS Foundation Trust

Led by AGH Solutions on behalf of the West Yorkshire Association of Acute Trusts (which includes some non-acute partners such as BDCFT), WYAAT are implementing a Sustainable Procurement Policy.

It is innovative in that it is region-wide, and therefore also ambitious. Individual Trusts sign up to the agreed Policy, cascade to staff and complete a self-assessment tool to create an action plan. By working to the same framework, suppliers to multiple Trusts know to expect the same sustainability requirements and scrutiny, Trusts can benchmark against each other and discuss mutually beneficial approaches. It is value for money because resource, knowledge and experience are shared, enabling Trusts to progress quicker than if they were to go it alone.

Each Trust is required to consider entry level criteria in a variety of social and environmentally sustainability categories and working towards an action plan to support progress to future levels. AGH Solutions Procurement team has drafted the policy, the

self-assessment tool and action plan to make it as easy as possible for Trusts to sign up. The work is spearheaded by their Head of Procurement, Oliver Golledge who is a champion of sustainable procurement. The work from Oliver and his team has enabled the adoption of a Sustainable Procurement Policy in multiple Trusts.

To support on-going efforts, Oliver is chairing monthly WYAAT Sustainable Procurement meetings to ensure sustainability topics such as Clean Air, NHS Oceans, reuse of surplus and car sharing to name a few, are regularly discussed by senior procurement teams. Embedding sustainable procurement will be crucial for meeting NHS net zero targets therefore this work is invaluable.

AGH Solutions have begun supplier engagement, encouraging suppliers to sign up to the Clean Van Commitment as part of the Clean Air Hospitals Framework on behalf of a number of Trusts. This is just the start of supplier engagement opportunities from AGH Solutions and procurement team with support of the BDCFT sustainability team. Evidence of this is yet to be evaluated, it will be reported back at future meetings.

## Newcastle upon Tyne NHS Foundation Trust

Over 70% of the carbon emissions in the Newcastle Hospitals Carbon Footprint come from the goods and services procured. In order to meet the commitment of net zero by 2040 a Sustainable Procurement Working Group was established, led by the Director of Supplies and Procurement, to bring together relevant expertise. A five-step process was created for suppliers:

## 1 Explain your views via questionnaire

## 2 Attend webinars

## 3 Measure your footprint and report

## 4 Publish targets that are aligned to the Trusts

## 5 Act and reduce your footprint

Each step is optional; however, step four must be in place by 2030. The process leads suppliers in to level one of the NHS Evergreen Supplier Framework, and supports the Greener NHS aim that by 2030 the NHS will not procure from any supplier that does not have its own net zero target.

As an initial action the supplier engagement survey was sent to 3,000 suppliers. Currently, the Trust's procurement carbon footprint is calculated using carbon factors for financial spend in different spend categories. Using this method makes it impossible for us to reach net zero without reducing the spend to zero and doesn't reflect the carbon performance of the supplier, therefore it is vital for us to establish a more accurate measurement of these emissions.

To take this engagement forward three webinars were delivered in 2021 to provide suppliers with information, support and guidance and included a segment on how to

calculate a carbon footprint and how they would like suppliers to provide that data.

489 suppliers responded to the initial survey and 98% pledged support to help Newcastle Hospitals achieve their net zero carbon goals. 64% already have carbon reduction targets or plans, 68% already measure and report their own carbon footprint and 57% were interested in attending an online workshop.

### The framework includes:

- Email invitations sent to all suppliers on the data base (c3000)
- Surveys - Suppliers provided with access to a new communication channel to engage with the Sustainability and Procurement teams
- Webinars - Support guidance, training and Q&A session
- Tools and resources – Free and discounted options to access a standard carbon reporting platform
- Shared learning (Invited presentation from case study suppliers already taking action)
- Information pack and sign posting to further training courses
- Certificates of attendance
- Carbon measurement and reduction provides engaged suppliers with the opportunity to:
  - Support other sustainability goals and environmental initiatives (e.g. ISO 14001)
  - Improve scores in sustainability initiatives and tender processes
  - Enhance legal compliance (e.g. Streamlined Energy and Carbon Reporting Regulations apply to quoted companies, large businesses and LLPs)
- Identify opportunities for financial savings
- Links to complimentary initiatives such as:
  - NHS Greener Evergreen Supplier Framework
  - Newcastle pound - Increase the proportion of our procurement spend with local suppliers
  - UK Government Procurement Policy Notes (PPNs)
  - Social Value Act





# SUSTAINABLE NUTRITION

An area of concern often overlooked within sustainability is our nutritional habits. Systematic approaches to food sustainability can improve health, reduce waste, lower our carbon footprint, and contribute towards the NHS meeting a net-zero target.



NHS England estimates that hospital food and catering produce 1.5 kilotonnes of carbon dioxide equivalent - 6% of the NHS's total greenhouse gases. The health and nutrition of our nation directly effects our NHS.

Two-thirds of the British adult population are overweight, and 27% are living with obesity and the health implications associated with this put direct excess strain on the NHS.

We have heard from NHS professionals and conducted research on both nutrition within the NHS (staff and patient food available within hospitals and Trusts) as well as how the NHS must strive to improve nutrition education outside of the NHS.

“ ”

If healthcare is to push back the boundaries. We mustn't accept second best, our patients and visitors deserve the optimal service.  
- Philip Shelley, Chair of the NHS Food Review

Over the year a desire to improve in-house NHS catering services with a focus on both staff and patient experience as well as sustainability has been heavily prevalent. Some of the main focuses have been:

- **Seasonal menu planning**
- **Waste management**
- **Focus on local supply chains**
- **Plant based options**

#### **Seasonal Menus**

Having a seasonal menu is an important focus for the sustainability of nutrition within the NHS. Building a menu around produce that is readily available at that time of year reduced the need for human assistance, meaning fewer pesticides, chemicals and preservatives are utilised. Seasonal growing is more likely to be locally produced as well, the burden of transportation and emissions from "food mileage" is also decreased.

#### **Waste Management**

The first port of call with food waste is to try to avoid waste all together. Reduction in wasted food also means a reduction in wasted carbon emissions. Food waste can be caused by inadequate processing, production waste, poor food handling, perishability factors, environmental events, loss during transport and harvesting, or because food simply doesn't make it past the farm gates. The space in which the NHS can have the greatest impact is by focussing on its supply chains and avoiding over ordering. Secondary to this, adequate food waste disposal is also vital.

#### **Local Supply Chains**

The best sustainable supply chain strategy is one that takes economic, environmental and social factors into account in procurement decisions. The easiest way to combat a large amount of these factors is by localising as much of your supply chain as possible. Local supply chains reduce a huge amount of carbon emissions caused by shipping alone.



It's time to look in the mirror, work closely with the allies within the hospital setting, as well as listening to advice from external experts in their field. Before making decisions.

- Philip Shelley, Chair of the NHS Food Review

### Plant Based

A topic broadly known within sustainable nutrition is that of people looking to change to vegetarian and vegan diets in order to reduce their environmental footprint. We spoke with The Vegan Society within one of our webinars in 2021 on their movement to get vegan food on every public sector menu. The number of people turning to a vegan diet is growing rapidly, with the number of vegans in the UK [quadrupling](#) between 2014 and 2019. Research from Oxford University has concluded that eating a plant-based diet could be the [single largest](#) way to reduce an individual's environmental impact. The NHS taking a lead on making plant-based meal options readily available could significantly aid a reduction in their impact.

One reason that diets containing animal products are considered less sustainable is due to the levels of efficiency in raising animals for food. The land, water and agrochemicals which are used to maintain cropland for animal food and grazing pastures, produces energy which does not directly enter the human food supply. Most of the energy usage associated with meat goods are created from sustaining the animal's life.



It has been found that switching to a plant-based diet can reduce a person's diet-related greenhouse gas emissions by an average of [70%](#).

Complaints have been previously raised about the lack of vegan options available for patients within some hospitals. This not only does not support a greener future for the NHS but also leads to discrimination, malnutrition in those choosing to follow a vegan diet and delayed recovery. Additionally, a well-balanced vegan diet typically consists of more fruits and vegetables and less saturated fats making it more cardio protective and reducing the risk of heart disease. So, supporting an increase in people taking on vegan diets directly benefits the NHS in increasing the nation's health.



We know that somebody that's following a well-balanced vegan diet will have a reduced risk of heart disease.

— Andrea Rymer, Registered Dietitian at The Vegan Society

All of the above reasoning combined is why a huge focus is and should be put on the introduction of vegan options as well as education on plant-based diets.

The main advice for hospital managers to improve sustainable nutrition within their facility over the next year is:

- 1 **Conduct a food audit to identify waste areas and collect patient feedback.**
- 2 **Review menus to offer healthy and low carbon options.**
- 3 **Educate staff and patients where possible to effect direct change on food waste and menu choice.**
- 4 **Collaborate with local suppliers.**
- 5 **Look to offer plant-based options.**

Sandwell and West Birmingham NHS Trust's greenhouse project has done wonders to promote sustainable and healthy nutrition from inside the Trust.

### Sandwell and West Birmingham NHS Trust

Sandwell and West Birmingham NHS Trust run a Community Greenhouse Project at City Hospital to promote wellbeing. This project provides space for the growth and cultivation of food, connecting people and plants through gardening and healthy eating. Previously derelict greenhouses have been rejuvenated and the Trust work with local volunteers who run the project, growing fruit, vegetables and plants. The produce is sold to the local community, staff, patients and visitors. This plan extends to the new Midland Metropolitan University Hospital where the local community are to be highly integrated into projects.





# POWERING THE NHS

With emerging digital technology allowing for greater power, optimization and analytics, energy efficiency is evolving. The NHS can reduce energy costs, increase resilience, and meet sustainability goals by implementing effective energy management.

## Energy Procurement

The first step in looking to reduce impact created from power in the NHS is to focus on procurement. The NHS has made a good first step by asking all Trusts to look to procure green energy in statements made within the plan to deliver net-zero:

*'18.5 The Provider must ensure that with effect from the earliest practicable date (having regard to the terms and duration of and any rights to terminate existing supply agreements) all electricity it purchases is from Renewable Sources.'*

*'Finally, the NHS will purchase 100% renewable energy from April 2021. While we are aware this creates no additionality (and hence have not been built any reductions for this shift in purchasing into the existing modelling), it does demonstrate the system's commitment to net zero.'*

It is important to look to move to a [REGO](#) (Renewable Energy Guarantees of Origin) backed green energy tariff. But, when looking at potential suppliers it is equally as important to choose one with a higher than grid average renewable mix, as this will increase demand for renewable energy and drive the grid in the right direction. All electricity suppliers source their energy from generators and suppliers are free to choose which generators they approach to source the energy. Because of this, suppliers have their own individual fuel mix. Whilst you may not be able

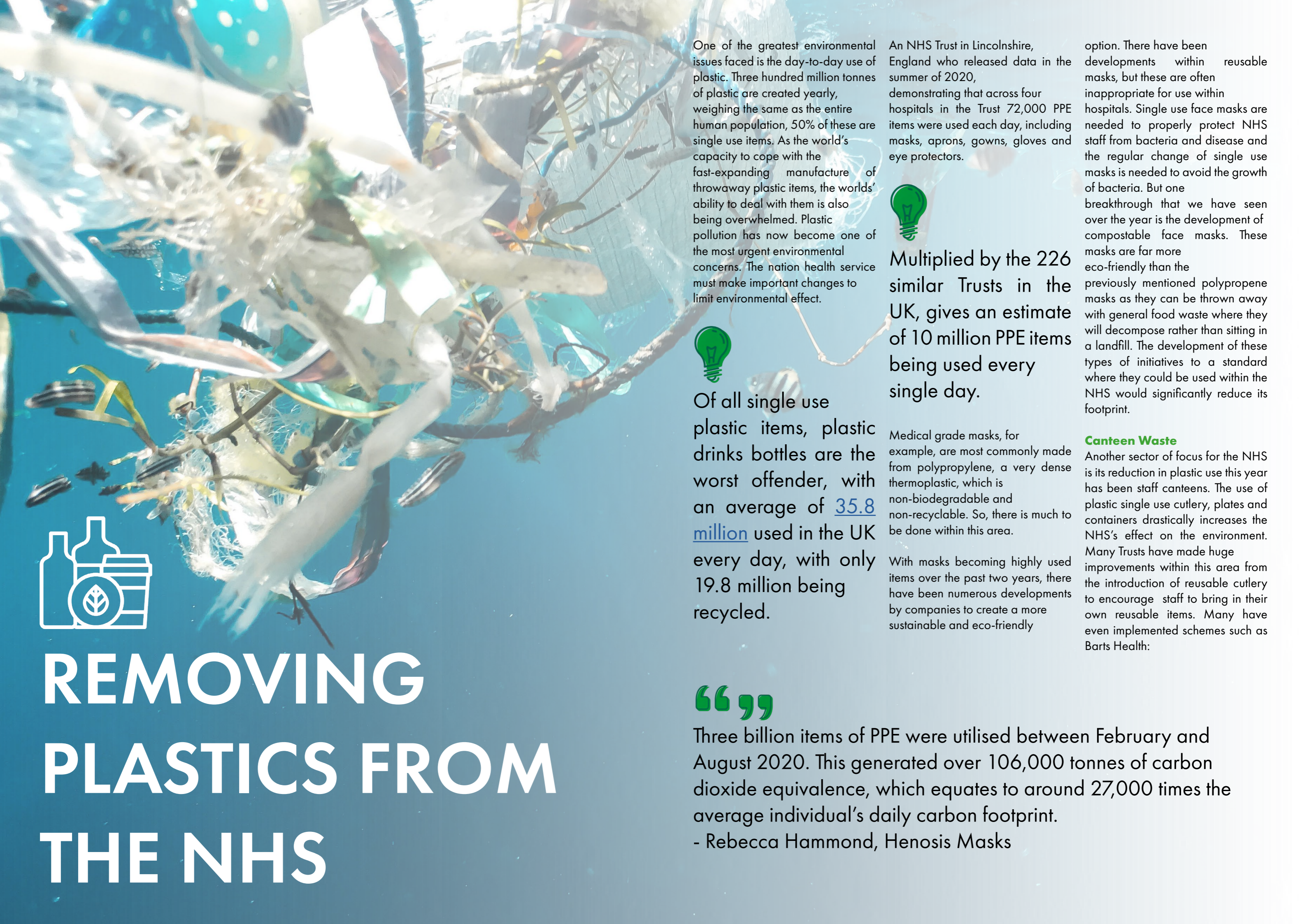
to evidence additionality through your choice of supplier, you can show desire to drive the grid in the right direction. Something which would be important to consider for the NHS as you are able to create influence outside the NHS as well as within. Once procurement of electricity has been balanced, you can then start to look at the feasibility of installing renewables on your site.

“ ”

Procuring energy well is the first step that's often overlooked in the net-zero journey.  
- Bethany Goodwin a Senior Account Manager and NHS specialist, Inenco.

## Renewables

When looking at renewables to install on-site, Trusts will most likely be looking to solar. It is expected that the NHS should contribute [580](#) kilotons of CO2 equivalent reductions in emissions from the secondary estate through installation of on-site generation. So, this is likely to be a large focus within the next few years. Trusts should look to install as much on-site generation as possible to reach this target. If installing renewables onto site is not appropriate for your Trust, which in many cases it may not be, then the main focus should revert back to procurement and ensuring a REGO backed energy supplier is chosen to make as much change as possible.



# REMOVING PLASTICS FROM THE NHS

One of the greatest environmental issues faced is the day-to-day use of plastic. Three hundred million tonnes of plastic are created yearly, weighing the same as the entire human population, 50% of these are single use items. As the world's capacity to cope with the fast-expanding manufacture of throwaway plastic items, the world's ability to deal with them is also being overwhelmed. Plastic pollution has now become one of the most urgent environmental concerns. The nation health service must make important changes to limit environmental effect.



Of all single use plastic items, plastic drinks bottles are the worst offender, with an average of [35.8 million](#) used in the UK every day, with only 19.8 million being recycled.

An NHS Trust in Lincolnshire, England who released data in the summer of 2020, demonstrating that across four hospitals in the Trust 72,000 PPE items were used each day, including masks, aprons, gowns, gloves and eye protectors.



Multiplied by the 226 similar Trusts in the UK, gives an estimate of 10 million PPE items being used every single day.

Medical grade masks, for example, are most commonly made from polypropylene, a very dense thermoplastic, which is non-biodegradable and non-recyclable. So, there is much to be done within this area.

With masks becoming highly used items over the past two years, there have been numerous developments by companies to create a more sustainable and eco-friendly

option. There have been developments within reusable masks, but these are often inappropriate for use within hospitals. Single use face masks are needed to properly protect NHS staff from bacteria and disease and the regular change of single use masks is needed to avoid the growth of bacteria. But one breakthrough that we have seen over the year is the development of compostable face masks. These masks are far more eco-friendly than the previously mentioned polypropylene masks as they can be thrown away with general food waste where they will decompose rather than sitting in a landfill. The development of these types of initiatives to a standard where they could be used within the NHS would significantly reduce its footprint.

## Canteen Waste

Another sector of focus for the NHS is its reduction in plastic use this year has been staff canteens. The use of plastic single use cutlery, plates and containers drastically increases the NHS's effect on the environment. Many Trusts have made huge improvements within this area from the introduction of reusable cutlery to encourage staff to bring in their own reusable items. Many have even implemented schemes such as Barts Health:

“ ”

Three billion items of PPE were utilised between February and August 2020. This generated over 106,000 tonnes of carbon dioxide equivalence, which equates to around 27,000 times the average individual's daily carbon footprint.

- Rebecca Hammond, Henosis Masks

## Barts Health NHS Trust partnership with CauliBox

Barts Health NHS Trust has recently partnered with CauliBox at their facility to aid in plastic reduction. CauliBox has developed a unique solution to address the 'food-to-go' single-use plastic packaging challenge: a digitally enabled reusable lunchbox scheme that rewards sustainable behaviour. The aim is to disrupt the urban food industry, helping staff canteens transition to reusable boxes by making the processes of sourcing, returning, collecting and washing lunch boxes convenient and reusable.

Their innovative circular economy puts convenience back into the 'bring your own' initiative, making it easy for customers to have their food-to-go without generating large volumes of waste, or require active change in their existing habits to bring in their own lunch boxes. Reusable lunch boxes are given to the canteen, coupled with 'drop-off' points for used boxes. The mobile application helps customers with the process of borrowing and returning boxes while earning 'CauliCoins', which can be redeemed for sustainable products. This unique reward system further incentivises sustainable behaviour.

From the first two weeks of service implementation in the two hospitals of Barts Health NHS Trust alone, the Trust saw 129 staff members register to the lunchbox scheme and 74 CauliBoxes reused. The most enthusiastic staff member has used one every day since signing up. They received overwhelmingly positive feedback of the "seamless" process, and that staff are engaged and willing to continue the change

in behaviour to tackle environmental issues. One staff member due to leave the Trust commented that they will "make sure [their] legacy is having everyone use it on their team". Not only does evidence back the continual and potential improvement of staff engagement and awareness to the initiative, but it also presents the direct positive impact on the environment. Projecting data of the two-week period, CauliBox can approximately divert an annual 457.08kg of carbon emissions, 4.27BJ of energy, 16,363.62L of water, and 4.16m2 of raw material from waste. Making a significant impact on the Trusts eco footprint.

### Waste Management

Another area in which the NHS can improve its effect through plastic consumption is through effective waste management.



Within the NHS currently 15% of waste is going to landfill, 23% is being recycled and 62% is going to incineration.

Whereas hospitals who are working with effective waste management companies and programs are achieving up to 31% percent recycling. Something which will only increase as these systems develop.



Behaviour is fundamental to success.  
- Stuart Hayward-Hingham, Suez UK

A big learning from the past few years has been that education is key, as this will only work if everyone is working towards the same goal. Staff behaviour is fundamental to waste management being a success. A critical thing to remember when looking into NHS waste management systems is that it will struggle to, or even be impossible to, raise to the same level as the general public. This is due to a proportion of NHS waste needing to be incinerated for medical reasons.

We heard from a range of businesses on their abilities to offer the NHS a sustainable solution to waste management and an emerging area we identified was chemical recycling. Chemical recycling has the ability to play an important role in a stronger, developed circular economy, due to the degrading of recycled plastics when they are manually recycled. Conventional energy retention through current incineration methods are currently not apt for its needs due to the large amount of energy released by plastic during incineration. Which is often too high for incinerators to properly process. And this is where chemical recycling can be of aid.



The plastic waste generated by the NHS is actually very, very high-quality plastic, we would view it as rocket fuel for our plants. We would love the opportunity to discuss ways of bringing that plastic waste via the NHS waste collection partners to our sites as we develop them to recycle this back into virgin polymeric material which can be used to generate new plastics or other hydrocarbon-based materials.

- Oliver Borek, Mura Technology

A multitude of Trusts have had their own programs put in place to reduce their plastic usage which have seen huge success so far.

## Sandwell and West Birmingham NHS Trust

Within their Green Plan and Net Zero Carbon Plan, Sandwell and West Birmingham NHS Trust have embedded major clinical sustainability projects, including reducing reliance on single-use plastics, moving towards social prescribing and reducing medicine waste, and transitioning prescribing to low carbon inhalers and anaesthetic gases. In 2019, the Trust was one of the first to sign up to the NHS Single-Use Plastics Reduction Campaign Pledge and remain committed to achieve the targets. Linking in with colleagues, they ran a 'Team Talks' to get feedback from staff. Based on this feedback, they have been putting in place many changes, including:

- Prevented over 43,000 non-sterile plastic kidney dishes from being procured (saving £9,000 per year)
- Removed plastic patient wash bowls and moved to pulp (saving over 3,000 plastic wash bowls each year)
- Moved to re-usable sharps containers that can be used 600 times (saving 18,200 plastic containers each year)
- Piloting reusable non-sterile gowns
- Piloting re-usable half-face mask respirators (instead of FFP3 masks)
- Putting in place a plan to re-use walking aids to achieve a minimum 40% target of all walking aids to be refurbished in the next 5 years
- Moving to re-usable Type IIr climate stripe masks
- Initiated a crisp packet recycling scheme

The Trust stated: "We realise that our healthcare services have a significant impact on the environment and remain committed to reducing these, whilst also working towards creating a more efficient and sustainable system. At SWN NHS we are committed to becoming an innovator and leader in sustainable healthcare. We aim to empower others at a local and national level so that sustainable practices are incorporated into the heart of organisations and enable positive contributions to public health. As part of this process, we will apply the following principles:

- **To deliver high quality care without exhausting resources or causing environmental damage and to preserve resources for future generations**
- **To embed sustainability into the heart of our organisation and lead on driving working practice towards using resources, like energy and water, more efficiently to reduce wastage. We believe that investing in infrastructure to improve energy and water efficiency will bring about positive environmental impacts and cost savings**
- **To engage and inspire our colleagues and patients to take actions that will collectively make a big impact. To drive this, we are developing a robust Net Zero Carbon Plan and Green Plan. These ambitious plans will outline projects that will provide the foundations to deliver net carbon zero ahead of 2040 for our energy related activities. They will also set a work plan for the Trust to achieve net carbon zero by 2045 or sooner for direct and indirect sustainability and carbon performance.**

## Sheffield Childrens NHS Foundation Trust

Starting in February and running until sustainability day (4th June) Sheffield Childrens NHS Foundation Trust ran a green pledge competition for staff to make green pledges for what they are going to change this year.

In total the Trust received 493 pledges. The winner received a bundle of eco products, and 40 runners up received reusable branded water bottles. This competition engaged all staff from board members to nurses, consultants and domestics and has helped to raise the profile of their Green Plan. In addition, the Trust ran a series of events for the whole of 'NHS sustainability week'. This included a series of communications to staff, an open forum for all staff (50 attendees), prize draws, litter picking events, green scavenger hunts and the

creation of the hashtag #sheffchildrensgogreen.

The week engaged with many members of staff and some patients and helped to create new green project ideas through the go green competition, which was a similar concept to their green wards initiative but included all departments. Some of the outcomes from their sustainability week were increased engagement with staff as well as the ICU department deciding to trial reusable gowns, the creation of a new green space for their on-site school, the catering department removed plastic cutlery and the EDRM team began looking at how they can reduce paper used.

Over the last 12 months and as a result of successful sustainability communication the Trust has developed and grown its Green Network to 40 members who meet monthly to discuss green issues, create project ideas and help disseminate the green messages.







# BUILDING SUSTAINABILITY

Many hospitals and health care facilities were established before World War II when sustainability was not a consideration in the planning and construction. Because of the historic infrastructure, many of our current healthcare institutions are now facing challenges in fulfilling their sustainability objectives.

## Building Resilience

There is a great need for focus on resilience within buildings.



Buildings are responsible for [38%](#) of energy-related emissions across the globe as well as being responsible for [50%](#) of extracted materials.

In addition to this, the world's building stock is continuously growing with it being predicted to almost double from [223](#) billion square meters to 415 billion square metres by 2050.

In July this year, it was announced that NHS Trusts would be invited to bid to build up to eight new hospitals with the goal of transforming current NHS services and level up public healthcare for thousands of people across the country. This is the beginning of a larger plan in which 40 new hospitals would be built across the UK by 2030. Making it the largest building programme of a generation.

Announcements of the building of greener NHS buildings has been a positive trend over the year, including Heartlands Hospital, being built as part of Birmingham Trust. The announcement of this estate coming within the next few years came with the statement that it would be built to the highest construction and environmental standards. The building will have the addition of sustainable features to reduce its carbon footprint such as roof-covering solar panels. This building is set to be the example for all future NHS locations. A great example of how future NHS buildings can become more sustainable is Foleshill.

## Foleshill

Foleshill Health Centre is the UK's first Passivhaus health building. It is a £3.3m 619m GP surgery for up to 10,000 patients in inner city Coventry. It has five consulting rooms and two treatment rooms. It is a partnership between Community Health Partnerships and NHS Coventry and Warwickshire Clinical Commissioning Group. The GP team, part of Coventry and Rugby GP Alliance, started seeing patients in August 2021.

The building is highly insulated, it is warm in winter and cool in the summer, exceeding the building regulations by about 40% and is very airtight. Heating is provided by an air source mechanical pump and all rooms are filtered 100% fresh air from ceiling ducts. There are solar voltaic panels on the roof; no fossil fuels are used onsite resulting in low utility bills. It has energy efficient LED lighting, triple glazed windows, an electric car charging point and bike racks. The healthcare centre has an EPC rating of 12, and is close to net zero CO2 and will be BREEAM Excellent.

The centre was created in 10 months from ground works to completion during the Covid-19 pandemic – nearly 30% quicker than a traditional building by using modern methods of construction (14 specially designed Portakabin modules). The units were then transported to Coventry and reassembled, becoming watertight in just three days. No waste was sent to landfill from the module production at the Portakabin facility. From the construction site at Foleshill, only 2.48% of waste went to landfill (1.063 tonnes) with 97.52% recycled (41.847 tonnes).

This is the first time NHS E&I has approved this type of energy efficient Passivhaus building for the NHS in England – an example for future of the estate. Foleshill has sensors in the building fabric to monitor performance including energy, water use, temperature, air quality and building usage. The building has a three year reporting process to both NHSE&I and the CCG. The centre contributes to the NHS carbon net zero target.

The green credentials of the project were further recognised by 10 awards including Infrastructure Award at the Sustainability Awards in Nov 2021.

## Legacy Locations

The main issue within the NHS when it comes to its building sustainability is not new builds, but rather legacy locations. New buildings are able to offer high standards of sustainability credentials, but the vast majority of the NHS estate are significantly older buildings. St Bartholomew's Hospital, for example, was founded back in 1123. Many buildings this old are listed, meaning that green solutions must be retrofitted. This can be an extremely difficult and time-consuming job, meaning that

jobs as small as fitting a smart meter are difficult to carry out. Because of this, the public health sector must look further than simply the efficiencies of new and old estates, but instead drill down the entire supply chain and ensure sustainability is at the core of the decision-making process.

Sustainable solutions for older, listed buildings come in many forms. We have spoken to a wide array of companies who are currently or looking to work alongside the NHS on building efficiency. We have heard of the difficulty these companies often find when looking to transform existing built environments due to the specialist design of the spaces for their intended use. Changing certain aspects within these spaces can create inefficiencies within the healthcare estate and these spaces are often difficult to get access to as they are in use 24/7.

“ ”

If you focus on the asset, you will fail. Think about the space, think about the environments you're trying to regenerate.

-Matt Paskin,  
Whitcroft Lighting

For example, changing lighting within an operating theatre would be no easy feat, as theatres are consistently in use, and with backlogs of appointments, any time out to replace lighting could cause major delays. In addition, there is

also emergency lighting and the other infrastructure and legacy assets already in situ. Quality and wellbeing must be a focus as well as energy saving tactics within spaces like these.

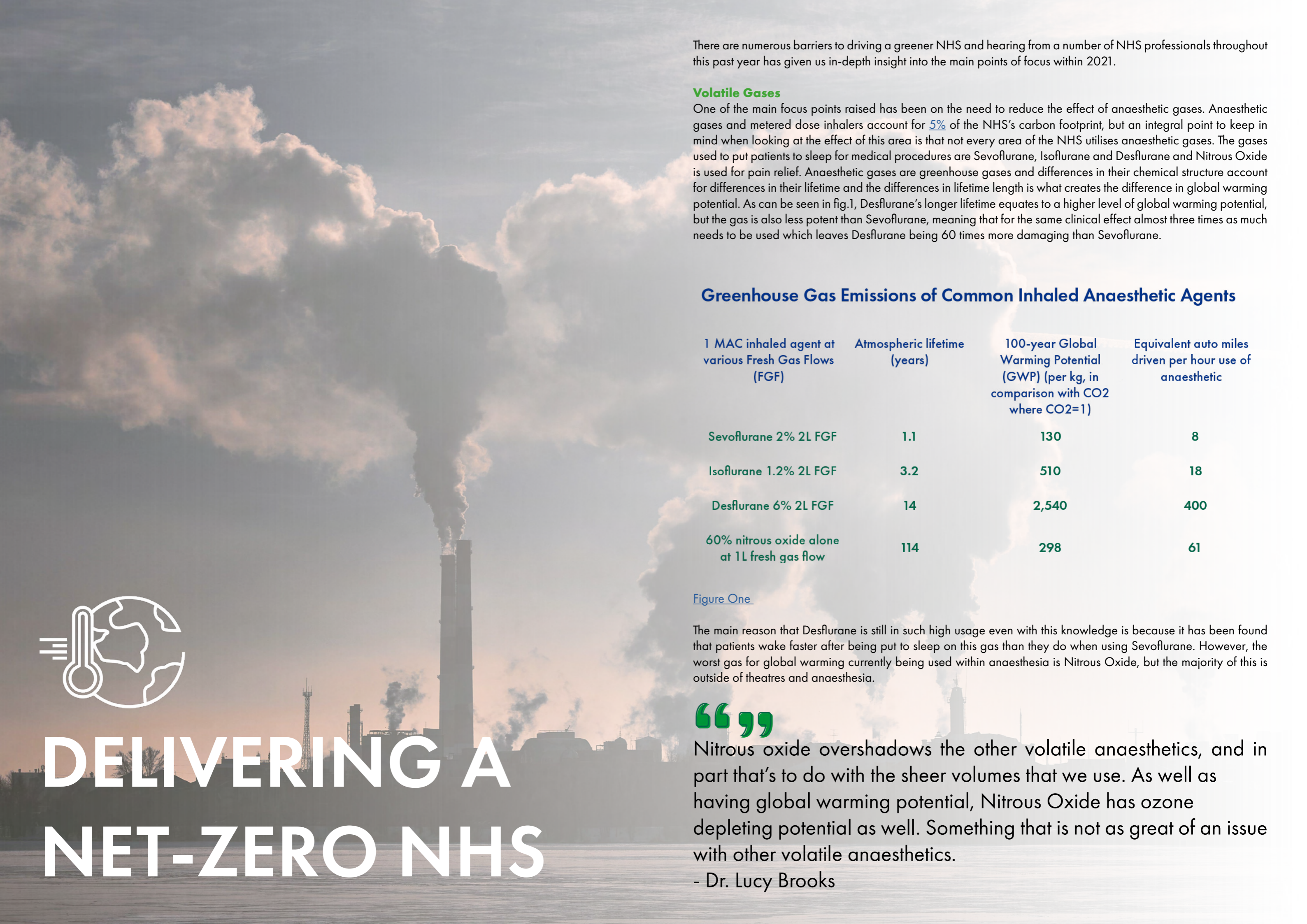
### Regeneration

Regeneration of the space is what must be at the heart of green building developments. Improving the space to make it more active and successful. A successful solution must be stakeholder and project driven. But this does not take away from the consideration needed on whether the best option is to regenerate or replace. The first thought from an environmental perspective would likely be to regenerate in order to reduce waste. But this is not always the best option for old building equipment. Often within these spaces, a new and more sustainable product must be created to set off on a better foot than the previous product.

A solution on the horizon for NHS building sustainability that is likely to grow is 3D printing.

Previously the NHS would have looked to buy large quantities of equipment which would then sit in storage until needed. But with a new solution of 3D printing, products can be made on demand, as needed which dramatically reduces waste. Materials needed for this method can often be cradle to cradle approved, adding to its sustainability credentials.





# DELIVERING A NET-ZERO NHS

There are numerous barriers to driving a greener NHS and hearing from a number of NHS professionals throughout this past year has given us in-depth insight into the main points of focus within 2021.

## Volatile Gases

One of the main focus points raised has been on the need to reduce the effect of anaesthetic gases. Anaesthetic gases and metered dose inhalers account for [5%](#) of the NHS’s carbon footprint, but an integral point to keep in mind when looking at the effect of this area is that not every area of the NHS utilises anaesthetic gases. The gases used to put patients to sleep for medical procedures are Sevoflurane, Isoflurane and Desflurane and Nitrous Oxide is used for pain relief. Anaesthetic gases are greenhouse gases and differences in their chemical structure account for differences in their lifetime and the differences in lifetime length is what creates the difference in global warming potential. As can be seen in fig.1, Desflurane’s longer lifetime equates to a higher level of global warming potential, but the gas is also less potent than Sevoflurane, meaning that for the same clinical effect almost three times as much needs to be used which leaves Desflurane being 60 times more damaging than Sevoflurane.

## Greenhouse Gas Emissions of Common Inhaled Anaesthetic Agents

1 MAC inhaled agent at various Fresh Gas Flows (FGF)	Atmospheric lifetime (years)	100-year Global Warming Potential (GWP) (per kg, in comparison with CO2 where CO2=1)	Equivalent auto miles driven per hour use of anaesthetic
Sevoflurane 2% 2L FGF	1.1	130	8
Isoflurane 1.2% 2L FGF	3.2	510	18
Desflurane 6% 2L FGF	14	2,540	400
60% nitrous oxide alone at 1L fresh gas flow	114	298	61

Figure One

The main reason that Desflurane is still in such high usage even with this knowledge is because it has been found that patients wake faster after being put to sleep on this gas than they do when using Sevoflurane. However, the worst gas for global warming currently being used within anaesthesia is Nitrous Oxide, but the majority of this is outside of theatres and anaesthesia.

“ ”

Nitrous oxide overshadows the other volatile anaesthetics, and in part that’s to do with the sheer volumes that we use. As well as having global warming potential, Nitrous Oxide has ozone depleting potential as well. Something that is not as great of an issue with other volatile anaesthetics.

- Dr. Lucy Brooks

Nitrous Oxide not only has global warming potential but also has Ozone depleting potential. It is believed that there is a huge amount of leakage and wastage of Nitrous Oxide in hospitals, with some estimated to be wasting up to [95%](#) before any reaches a patient. This is primarily from leaky pipes and manifolds as well as general manifold management. This not only causes issues within global warming but also creates money waste.

### Single Use Plastics

One effect that anaesthesia has on the NHS's sustainability efforts are the amount of single use plastic waste created from these procedures. The NHS produces approximately [400,000](#) tonnes of waste per year so reduction within this area is vital, and it is estimated that [40%](#) of anaesthetic waste could be recycled. And second effect anaesthesia is the energy consumption within theatres. Machines such as anaesthetic machines are not overly energy intensive, but some such as patient convective warming devices and radiative heating devices use a huge amount of energy. But one machine of high importance is the anaesthetic gas scavenging systems which are hugely draining on energy and are often left on out of hours when not in use.

There have been some great movements from within the NHS to reduce the effect from volatile anaesthetic gases, one being the efforts made by Northumbria NHS Foundation Trust.

## Northumbria NHS Foundation Trust

At the Northumbria NHS Foundation Trust, the surgical business unit and in-particular the anaesthetic department have

embraced the sustainability agenda and changed clinical practice to be more sustainable and less environmentally damaging.

Desflurane has been removed from the department, increasing the number of cases done under regional anaesthesia and total intravenous anaesthesia. Recycling of cardboard, paper and plastics has flourished alongside recycling of tray wraps/masks by a Sterimelt machine has also been implemented.

Clinicians in the department are up to speed with environmental impact of medical gases and have reduced nitrous oxide use. Reusable theatre hats are a first step in moving away from single use items and has been embraced by staff.

The Trust is just at the start of their journey and have many ambitious projects for the next year. Including changing from ethyl chloride spray to metal sticks, assessing the pre assessment pathway to reduce miles travelled by patients and assessing every procedure to minimise waste, choose reusable where possible and ensure patients understand the environmental impact of their treatment as well as clinicians.

There are numerous ways in which medication separate from anaesthetics being used within the NHS are affecting the environment and increasing carbon outputs. And one facility working to lessen these effects is the University Hospital Wales.

## University Hospital Wales

At the University Hospital of Wales, the main aims were to assess carbon dioxide equivalents (kgCO<sub>2</sub>e) and price per 1g of paracetamol use

pre or intra-operatively between Intravenous (IV), suppository, oral tablets, oral effervescent and suspension preparation. They conducted this research through life cycle assessment which was calculated from 'cradle to grave', applying the Inventory of Carbon & Energy database to attain the embodied carbon factor to enable a total kgCO<sub>2</sub>e for each preparation.

Results so far have been:

- **The IV preparation has a significantly higher total kgCO<sub>2</sub>(9.233) suspension next (2.797), suppository (0.70537), effervescent (0.385), and oral tablets (0.0847) of kgCO<sub>2</sub>e per 1g paracetamol used as surgical analgesia. The most energy demanding sub-section was cradle to grave (98%), with travel and waste contributing under 2% to the total GHG emissions for all preparations**
- **Oral tablets had the lowest cost, at £0.0249/ 1g paracetamol, effervescent (£0.182), suspension (£0.523), IV (£1.20), with suppositories the highest at £11.04**

On assessing the carbon footprint, clinical efficiency and price this study has evaluated the sustainability value of each paracetamol preparation. The clinical use of IV paracetamol use needs to be questioned with oral preparations having the same efficiency with a significantly lower GHG emission total and price per use. It highlights the sustainable alternatives to oral tablets in respect to certain patient populations with the use of

effervescence and suspensions still being superior to IV environmentally and economically.

This study is the most comprehensive carbon footprint tracing of paracetamol preparations performed. It shows a considerable carbon footprint in the use of IV preparations over its oral alternatives: of particular the use of oral tablets. However, limitations must be considered, including reliance on secondary sources for the crude paracetamol chemical emission factors and estimating the travel route in its preparation from cradle to grave.

The potential extent in the reductions achievable through the use of oral paracetamol has been demonstrated in this study; to that of the environment and the wider global populations health. With the NHS striving for 'Net Zero' GHG emissions, this contribution could bring this ambitious target a step closer (Wise 2020), whilst reducing the economic burden that pharmaceuticals contribute within the NHS (Rodwin 2021).

### Green Plans

One tool which is vital to helping break down barriers in delivering a net-zero NHS is Trusts green plans. We spoke with Heidi Barnard, Group Head of Sustainability at The Northern Care Alliance this year who stated that when creating green plans, an important fact to remember is that the climate crisis is also a health crisis, and the NHS has only six years to deal with their direction emissions.

It is important that there is a sense of urgency around breaking down these barriers and pushing towards a greener future for the NHS, as many see the 2045 target to become net-zero as being far enough in the future that immediate action is not always taken.

“ ”

The Climate Crisis is a Health Crisis! The target is net-zero by 2045, but our ambition is to get 80% of that done between 2028 and 2032. That is six years away.

- Heidi Barnard

When putting together an efficient green plan it is important to consider where a Trust can have the most influence. For example, if a Trust is close to electrical capacity, then looking to electrify a large amount of a facility to cut carbon emissions is likely not the best move to be taking as, even if installed, it will not run correctly. So, at this point the first port of call would be looking to increase electrical capacity before making these changes, but this can depend on the correct funding.

“ ”

One thing to remember about your plan is to focus on every decision you take, every choice you make should contribute to delivering that zero carbon for your organisation. If you do that, the green plan would have done its job. Obviously, there's lots of detail in the plan about how and what we're going to be doing. But fundamentally, we need our organisation to have this at the forefront of their mind when they're making choices and making decisions.

- Heidi Barnard

Strong staff engagement is also integral to a successful green plan. Staff need to be engaged and on board with the plan for it to continue to move forward. A great example of boosting staff engagement with a green plan is Bradford District Care NHS Foundation Trusts induction and training sessions.

## Bradford District Care NHS Foundation Trust

An innovative approach within BDCFT was to develop strong staff engagement with their Green Plan, which includes several targets that rely on raising awareness and upskilling staff in Sustainability. The target was to recruit 150 Green Champions (5% of workforce) to be Green Champions by April 2026. To date the Trust have trained 136 and therefore future iterations of the Green Plan are to include a stretched target.

Staff engagement has included delivering a virtual half hour introduction/training session which focusses on NHS net zero, BDCFT emissions and personal responsibilities at home and work. The Trust have developed a monthly Green News to highlight sustainability issues in the Trust and more widely which has been very well received. Staff are communicated with through regular topical posts in a weekly all staff e-update.

Significantly the Trust is cross working with other teams to ensure Sustainability isn't just an Estates issue. With the Wellbeing at Work team weekly content as been provided for their Walking Challenge newsletter to highlight different sustainability topics such as plogging, air quality and use of green space. This enhanced

engagement is paying dividends as now the whole Children's Services department are looking to embed sustainability in their service and have highlighted a number of opportunities for staff and service user engagement. Similarly, the green agenda is now firmly included in corporate working and their Smarter Working programme, which will deliver both financial and environmental efficiencies as we work differently post Covid.



# 2022 AGENDA

After a challenging 2021 for the NHS, we are looking forward to new beginnings and an even stronger sustainability focus in 2022. Last year we witnessed amazing progress within the public health sector towards a greener future and learnt of some fantastic, innovative new products and services from industry professionals and businesses that are opening new doors for the sector. And we plan to continue the journey this year with the same momentum.

We have set out plans for our 2022 agenda, taking all the insight we have gained from the past year in order to make 2022 even bigger and better.

## January

### *Event: The 2022 Agenda*

To kick off 2022 we will be hosting a free one-hour webinar in which we will be inviting NHS professionals as well as industry experts to discuss what is to come throughout the next year of NHS sustainability. We will also discuss what Sustainability Partnerships has planned for the upcoming year including events and partnership opportunities.

### *Quarter 1 Newsletter*

This newsletter will cover the previous three months (October-December 2021); our achievements, highlights of events and content as well as an overview of what is to come in 2022. Sign up to our email list [here](#) to receive the newsletter as well as sustainability updates.

### *Veganuary*

In January we will have a focus on how the introduction of plant-based diets within the NHS and education on this way of eating can help push the NHS towards a greener future.

## February

### *Event: Owned Webinar*

We will be looking for likeminded businesses to host webinars to showcase how their products or services can aid the NHS in meeting their sustainability targets. If you feel as though your business would be appropriate to sponsor an event of this sort, contact us.

## March

### *Event: Owned Webinar*

We will be looking for likeminded businesses to host webinars to showcase how their products or services can aid the NHS in meeting their sustainability targets. If you feel as though your business would be appropriate to sponsor an event of this sort, contact us.



**SUSTAINABILITY**  
PARTNERSHIPS